

Changing the Rules of the Game—An Analysis of EU Influence on Electricity and Gas Liberalization

With a Focus on the Baltic Sea Region, and Future
Challenges to EU Energy Market Regulation

Thesis
presented to the Faculty of Arts
of
the University of Zurich
for the degree of Doctor of Philosophy
by

Idir Laurent Khiair
of Gaiserwald (SG)

Accepted in the fall semester 2011 on the
recommendation of Prof. Dr. Dieter Ruloff and Prof. Dr. Dirk Lehmkuhl

Zurich, 2011

Changing the Rules of the Game—An Analysis of EU Influence on Electricity and Gas Liberalization

With a Focus on the Baltic Sea Region, and Future Challenges to EU Energy Market Regulation

Idir Laurent Khiar

Supported by



FONDS NATIONAL SUISSE
SCHWEIZERISCHER NATIONALFONDS
FONDO NAZIONALE SVIZZERO
SWISS NATIONAL SCIENCE FOUNDATION



*Dedicated to my parents, my sister and my brothers
for their support and encouragement.*

CONTENT

Figures and Tables.....	XI
Preface	XIII
Abbreviations and Acronyms	XV
 1 Introduction	 1
1.1 Research Question.....	3
1.2 Theoretical and Practical Relevance.....	5
1.3 State of the Art	6
1.4 Structure of the Study.....	8
 2 Political Economy of Electricity and Gas Supply	 10
2.1 Rise of the Electricity and Gas Industry	10
2.2 Electricity and Gas Supply before Liberalization	11
2.2.1 Political Justifications.....	12
2.2.2 Economic Justifications	12
2.2.3 Electricity and Gas Supply Absent of Competition	15
2.3 Liberalizing Electricity and Gas Supply.....	16
2.3.1 Economic Justifications	17
2.3.2 Political Justifications.....	19
2.3.3 Energy Liberalization as a Public Policy Shift	20
2.4 Regulating for Competition in Electricity and Gas Supply.....	21
2.4.1 Changing the Rules of the Game	23
2.4.2 Changing and Guiding the Behavior of Market Participants	26
2.5 Establishing Competitive Markets and Energy Security	28
2.5.1 Energy Security and Liberalization.....	28
2.5.2 (New) Energy Security Concerns in Competitive Markets	31
 3 Theoretical Framework.....	 37
3.1 Europeanization Research.....	37
3.2 Towards Capturing EU Influence	38
3.3 Independent and Dependent Variables.....	42
3.4 Modifying Factors Determining EU Influence.....	43
3.5 Isolating EU Influence and Methodology	45

4	Basic Analytical Framework	47
4.1	Capturing EU Influence on Energy Liberalization.....	47
4.2	Modifying Factors Determining EU Influence.....	49
4.3	Methodology and Data.....	52
5	EU Expansion into Energy Market Regulation.....	56
5.1	Key EU Energy Market Regulation until 1996.....	56
5.1.1	European Coal and Steel Community (ECSC).....	57
5.1.2	European Atomic Energy Community (EAEC).....	58
5.1.3	EU Energy Market Regulation in the Past	58
5.2	Completing the Internal (Energy) Market.....	60
5.2.1	Commission Justification for a Competitive Market Environment.....	62
5.2.2	Ambiguous Legal Foundation for Community Action	64
5.2.3	Cautiously towards a More Competitive Market Environment.....	68
5.2.4	Factors Facilitating the Move of the EU into Energy Market Regulation	72
5.3	Political and Legal Basis for EU Energy Market Regulation.....	74
5.3.1	Political Legitimacy and Legal Basis until 2009	74
5.3.2	Development of the Legal Basis and Limits to EU Influence	75
6	Development of EU Energy Market Regulation	79
6.1	Energy Legislation Packages (ELPs).....	79
6.2	Changing the Rules of the Game From 1996 to 2009	81
6.2.1	Liberalization of Electricity Supply	81
6.2.2	Liberalization of Gas Supply.....	84
6.2.3	New Regulatory Institutions on the National and EU level.....	86
6.3	Changing and Guiding the Behavior of Market Participants.....	89
6.3.1	Applying EU Competition Rules to Electricity and Gas Supply	89
6.3.2	Liberalization by Competition Rules.....	90
6.3.3	Manufacturing Competitive Markets by Competition Rules	92
7	EU Exporting Energy Market Regulation	96
7.1	Reasons for Exporting Energy Market Regulation.....	96
7.1.1	Principle of Reciprocity	98
7.1.2	European Economic Area (EEA).....	99
7.1.3	Accession Negotiations.....	99
7.1.4	Energy Community	100
7.1.5	Bilateral Energy Treaties	103

7.2	EU and Energy in Multilateral Trade Regimes.....	104
7.2.1	Energy Charter Treaty	105
7.2.2	WTO and Energy	106
8	Energy Liberalization in the Baltic Sea Region.....	110
8.1	Germany.....	111
8.1.1	Changing the Rules of the Game in Electricity Supply in Germany	111
8.1.2	Role of Energy Security, Economic and Political Justifications.....	112
8.1.3	Role of the EU in Electricity Liberalization in Germany	115
8.1.4	Gas Liberalization in Germany and the Role of the EU	115
8.2	Sweden.....	116
8.2.1	Changing the Rules of the Game in Electricity Supply in Sweden.....	116
8.2.2	Role of Energy Security, Economic and Political Justifications.....	117
8.2.3	Role of the EU in Electricity Liberalization in Sweden	120
8.2.4	Gas Liberalization in Sweden and the Role of the EU.....	121
8.3	Finland.....	121
8.3.1	Changing the Rules of the Game in Electricity Supply in Finland	121
8.3.2	Role of Energy Security, Economic and Political Justifications.....	122
8.3.3	Role of the EU in Electricity Liberalization in Finland	125
8.3.4	Gas Liberalization in Finland and the Role of the EU	125
8.4	Poland.....	127
8.4.1	Changing the Rules of the Game in Electricity Supply in Poland.....	127
8.4.2	Role of Energy Security, Economic and Political Justifications.....	129
8.4.3	Role of the EU in Electricity Liberalization in Poland	131
8.4.4	Gas Liberalization in Poland and the Role of the EU.....	132
8.5	Lithuania.....	132
8.5.1	Changing the Rules of the Game in Electricity Supply in Lithuania.....	132
8.5.2	Role of Energy Security, Economic and Political Justifications.....	133
8.5.3	Role of the EU in Electricity Liberalization in Lithuania	138
8.5.4	Gas Liberalization in Lithuania and the Role of the EU.....	139
8.6	Latvia	141
8.6.1	Changing the Rules of the Game in Electricity Supply in Latvia.....	141
8.6.2	Role of Energy Security, Economic and Political Justifications.....	142
8.6.3	Role of the EU in Electricity Liberalization in Latvia	144
8.6.4	Gas Liberalization in Latvia and the Role of the EU.....	145

8.7	Estonia.....	145
8.7.1	Changing the Rules of the Game in Electricity Supply in Estonia.....	145
8.7.2	Role of Energy Security, Economic and Political Justifications.....	146
8.7.3	Role of the EU in Electricity Liberalization in Estonia	151
8.7.4	Gas Liberalization in Estonia and the Role of the EU.....	152
9	Analysis of the Case Studies.....	154
9.1	Capturing and Isolating EU Influence on Energy Liberalization	154
9.2	Modifying Factors Determining EU Influence.....	158
9.3	Other Factors Determining EU Influence on Liberalization.....	161
9.4	Key Conclusions and Validity.....	163
10	EU Energy Market Regulation: Future Developments and Challenges	167
10.1	More Active Approach to Regulating for Competition	167
10.2	Changing and Guiding the Behavior of Market Participants.....	169
10.2.1	Competitive Market Manufacturing In Germany	169
10.2.2	Competitive Market Manufacturing in the Baltic Sea Region.....	172
10.3	National Energy Security Concerns in the Baltic Sea Region.....	172
10.3.1	Delivery Security Risks	173
10.3.2	Affordability Risks	176
10.3.3	External Dependency Risks.....	177
10.3.4	Energy Security Concerns and EU Energy Market Regulation.....	181
10.4	Internal Energy Market and Systemic Risk.....	182
11	Conclusions.....	186
11.1	EU Influence on Energy Liberalization	186
11.2	Implications for EU Energy Market Regulation.....	189
11.3	Towards a Better Understanding of European Integration	191
	References	194
	Annex.....	214
	Annex I: Visualization of Power Supply Situation in the Case Studies.....	214
	Annex II: Data Used for Visualization of Power Supply Situation in the Case Studies	216

FIGURES AND TABLES

Table 1: Merit Order for Different Sources of Electricity	13
Table 2: The Supply Chain of Electricity and Gas.....	15
Table 3: Liberalization a Public Policy Shift in Performance Expectations	21
Table 4: Liberalization as a Public Policy Shift in Economic Organization of Energy Supply	22
Table 5: Unbundling: Reducing Potential for Unfair Discrimination	24
Table 6: Third Party Access (TPA) to the Network: Negotiated and Regulated.....	25
Table 7: The Three Risk Dimensions of Energy Security	29
Table 8: Key Documents Related to the Internal Energy Market in the 1980s.....	61
Table 9: Directives towards a More Integrated European Energy Market.....	68
Table 10: EU Energy Legislation Aiming at Electricity Liberalization.....	82
Table 11: EU Energy Legislation Aiming at Gas Liberalization	84
Table 12: EU Regulatory Competences Based on ACER.....	87
Table 13: Countries Participating in the Energy Community	101
Table 14: Indicative Electricity Import Capacity Rates for the Baltic States (in TWh).....	174
Table 15: Power Supply Structure in Germany, Sweden, Finland, Poland, Lithuania, Latvia and Estonia before and by 2008 (in TWh)	178
Figure 1: Price Building on a Fictional Electricity Spot Market.....	33
Figure 2: Formal Analytical Framework for Europeanization	45
Figure 3: EU Measures Directed at Energy Liberalization	48
Figure 4: Basic Analytical Framework for EU Influence on Energy Liberalization.....	51
Figure 5: EU Exporting Energy Market Regulation.....	97
Figure 6: Power Supply Situation for Germany in 1998.....	113
Figure 7: Power Supply Situation for Sweden in 1996	118
Figure 8: Power Supply Situation for Finland in 1990.....	123
Figure 9: Power Supply Situation for Poland in 1989.....	129
Figure 10: Power Supply Situation for Lithuania in 2004.....	134
Figure 11: Power Supply Situation for Lithuania in 2010.....	136
Figure 12: Power Supply Situation for Latvia in 2009.....	142
Figure 13: Power Supply Situation for Estonia in 2004.....	147

PREFACE

Analyzing the role of the EU in fostering energy security with regard to gas supply was the subject of my master thesis in political science. In the course of that analysis, it became clear that the EU over the past two decades had expanded its influence beyond simply supporting Member States in addressing energy security concerns to fundamentally reshaping the economic organization of electricity and gas supply in Member States. Given the vital importance of energy supply for modern economies and the usual affiliation of energy policy with national security policy, this process is stunning. How was it possible that Member States were willing to cede responsibility in such an important policy area? This called for taking a closer look at the EU's role in energy market regulation. In doing so in this study, I focused on the EU's role on energy liberalization—in other words, changing the rules of the game for electricity and gas supply in Member States. This subject has not only proved to be a very challenging and fascinating research topic but, as I believe, enhances our understanding of European Integration as it reminds us of the complexity and difficulties of that process.

The completion of this study would not have been possible without support and guidance from several individuals. I would like to thank my longstanding teacher in international relations, Dieter Ruloff, Professor of International Relations and Head of the Institute of Political Science at the University of Zurich. He supported and guided my research efforts from the beginning and directed my attention to the young research area of Europeanization, which proved to be highly beneficial for this study. I am also indebted to Dirk Lehmkuhl, Professor of European Politics at the University of St. Gallen. As an expert in Europeanization research he encouraged me to undertake this research and provided valuable feedback to the initial research proposal leading to this study. I am grateful to Viktor Trasberg, Professor of Macroeconomics, and Urmas Varblane, Professor of International Business, at the University of Tartu. I am indebted to them for their overall support through my studies as a visiting researcher at the University of Tartu. My research stay was made possible by the Swiss National Science Foundation (SNF) and the DoRa ESF Program, provided by the European Structural Fund and the government of Estonia.

The preparation of this study was inspired by discussions concerning the financial crisis with working colleagues during my previous work in government and regulatory affairs at Zurich Financial Services. The legal issues elaborated on in this study benefited, in particular, from

discussions with a good friend and an excellent lawyer, Raphael Thomas Arnold. Finally, and most importantly, I am thankful to my family and closest friends for all their moral support and encouragement throughout the course of this study.

Finally, the study benefited greatly from discussions with regulatory professionals. I am indebted to Airi Asperk, Chief Specialist at the Energy Department of the Estonian Competition Authority, Diana Korsakaite, Head of the National Control Commission for Prices and Energy of the Republic of Lithuania, and Dace Bite, Head of General Energy Regulation Division of Latvia's Public Utility Commission. Einari Kisel, Deputy Secretary-General of Energy of the Estonian Ministry of Economic Affairs and Communications, and Zygimantas Vaiciunas, Head of Division for Strategic Planning and EU Affairs of the Ministry of Energy of Lithuania, provided valuable insights to the EU's influence on domestic energy policy. If not otherwise indicated, statements made in this study should not be attributed to the regulatory professionals and government officials interviewed for this study. All errors and mistakes rest with the author.

ABBREVIATIONS AND ACRONYMS

ACER	Agency for the Cooperation of Energy Regulators
BEMIP	Baltic Energy Market Interconnection Plan
CEER	Council of European Energy Regulators
CHP	Combined heat and power
DDA	Doha Development Agenda
DG	Directorate General
DSB	Dispute settlement body
DSO	Distribution system operator
EAEC	European Atomic Energy Community
EEA	European Economic Area
EEC	European Economic Community
EC	European Community
ECJ	European Court of Justice
ECSC	European Coal and Steel Community
ECT	Energy Charter Treaty
EU	European Union
ELP	Energy legislation package
ENTSO-E	European Network of Transmission System Operators for Electricity
ENTSO-G	European Network of Transmission System Operators for Gas
ERGEG	European Regulator's Group for Electricity and Gas
ETS	Emissions trading scheme
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GDP	Gross domestic product
GECF	Gas Exporting Countries Forum
IEA	International Energy Agency
ITO	Independent transmission system operator
LNG	Liquefied natural gas
Mtoe	Million tonne of oil equivalent (1 Mtoe \approx 11.63 TWh)
MW	Megawatt
NCM	Nordic Council of Ministers
NPP	Nuclear power plant

NPS	Nord Pool Spot
OECD	Organization for Economic Cooperation and Development
OTC	Over the counter (trading)
SEA	Single European Act
TFEU	Treaty on the Functioning of the European Union
TPA	Third party access
TSO	Transmission system operator
TWh	Terawatt hour ($1 \text{ TWh} = 10^3 \text{ GWh} = 10^6 \text{ MWh} = 10^9 \text{ kWh}$)
UCTE	Union for the Coordination of Transmission of Electricity
WTO	World Trade Organization

“One of the most interesting aspects of the liberalization refers precisely to the definition of the conditions to be fulfilled to ensure maintenance, and even the strengthening, of the universal services in a market open to competition.”

–Claus-Dieter Ehlermann, Director General DG Competition,
European Commission (1994)¹

“Europe’s previous overcapacity is becoming history.”

–European Commission, Green Paper on Energy Policy (2006)²

“There is a need for unprecedented levels of investment to be sustained over many years in difficult financial conditions and against a background of increased risk and uncertainty.”

–British Office for Gas and Electricity Markets (2010)³

¹ (Ehlermann 1994: 350).

² (COM (2006) 105: 6).

³ (BOFGEM 2010).

1 INTRODUCTION

The energy sector has formed a constituent element of the European Union (EU). In addition to the Treaty of Rome, which established the European Economic Community (EEC), the remaining two founding treaties, adopted in the 1950s, related mainly to the energy sector or segments of it, such as the European Coal and Steel Community (ECSC) and the European Atomic Energy Community (EAEC). Contrary to the efforts of the EU in the energy sector nowadays, at that time the main rationale behind those treaties was of a security rather than an economic nature. With the end of the Second World War having been only a couple of years earlier, coal and steel were still perceived by the founding members—France, Germany, Belgium, Italy and the Netherlands—as resources vital to waging war. Hence, pooling these resources in a common market governed by a supranational authority, the ECSC, is commonly understood as an important step towards securing peace in Europe.

Three decades had to pass until energy policy became subject to a more economic approach. With the adoption of the Single European Act (SEA) in 1986, the EEC Member States agreed to create a single European market for goods and services, which, pushed by the Commission, was also to include electricity and gas. Consequently, this led to a new quality of energy policy and regulation on the European level, and significant structural and regulatory change in the energy sector of the Member States, which endures today.

This process is remarkable, since for often more than a century the energy sector of those countries was characterized by significant state interference and monopolistic market structures. In order to reach the goal of creating an internal market, set by the SEA, the EC and later the EU engaged in efforts to liberalize the electricity and natural gas industry on their territory (Matthes 2004). Thereby, they pushed for the establishment of a competitive market environment for electricity and gas supply, triggering a fundamental change in national market regulation and the structure of energy supply in Member States.

However, in those states liberalization was not only undertaken to comply with the EC/EU requirements, but also because liberalization was believed to benefit retail and wholesale consumers. A competitive market environment was likely to put pressure on incumbent companies to become economically more efficient in order to be able to compete with new market participants, ultimately benefiting energy consumers with lower prices and better service (Newberry 1999: 18, 102–106; Joskow 2006: 3).

Like most major economic reforms, energy sector liberalization proved to be a cumbersome process. Despite being politically mandated to establish an internal energy market, the EU faced significant difficulties in pushing through liberal reforms in Member States, a process still ongoing today. The EU's support for energy liberalization was laying fertile ground for the expansion of cross-border energy trading and the ultimate goal, which was creating an internal energy market.

However, the EU was not the only actor in Europe facing challenges in the context of liberalization. Member states and the energy industry were undeniably closer to this very process. For them the past two decades meant coping with constantly changing rules of the game for electricity and gas supply, as national energy market regulation had to be adapted to the evolving EU energy market legislation.

Challenges faced by Member States were basically twofold. Being subject to the EU liberalization pressure, they were confronted with the task of establishing and ensuring competitive energy markets on their territory. This was accompanied by transposing and implementing relevant EU secondary legislation. Further, liberalization created new political challenges related to energy supply security. This was closely linked to the paradigmatic change that occurred in the regulation of the energy sector. The transition from an exceedingly state-controlled to a competition-driven sector required conceptually new solutions to social, economic and political needs. Energy security, energy dependency on third countries, and preserving a viable domestic energy industry were just a few issues that had to be addressed, and are likely to stay on the political agenda for some time to come.

Finally, but in no way conclusively, liberalization was also a challenge to the electricity and gas industry. Previously (privileged) companies had to adapt to new regulation and, eventually, to a rapidly changing business environment and a shortened planning horizon. Besides posing new challenges, liberalization opened up new opportunities as well. It triggered innovative thinking and business approaches. Last but not least, it also proved to be an opportunity for the alternative energy industry to progress and grow, since it contributed in many countries to the development of a green power market.

1.1 RESEARCH QUESTION

This study investigates the influence of the EU on energy liberalization in Member States. Investigating how EU energy market regulation on the European level grew and influenced energy liberalization in Member States is intriguing and relevant for many reasons.

Since the 1990s, a distinct EU regulatory framework for electricity and gas supply has evolved, aimed at paving the way for the internal energy market. Given that the latter is based on the competitive market approach, a significant element of the regulatory framework consists of EU market regulation prescribing Member States a particular public policy approach to the economic organization of electricity and gas supply, resulting in what is commonly known as energy liberalization. Since 1996 until today, three EU Energy Legislation Packages (ELPs) have been adopted. New energy institutions have been established on the EU level, with the most recent being the Agency for the Cooperation of Energy Regulators (ACER), founded in 2010. This reflects an ongoing expansion of EU energy market regulation and influence in the energy sector.

This is an astonishing development given the vital role that energy plays in the wellbeing of modern societies and economies. As a result, energy policy has always been considered an extremely important national policy area, often treated in relation to economic, industrial and security politics. Unsurprisingly, the EU's ambition of increasing its regulatory role for energy markets in the past usually faced strong political resistance by Member States fearing a loss of control over an essential sector of their economy. In that context, the development of such an EU regulatory framework is surprising as with electricity and gas market regulation it prescribes Member States a particular public policy approach to electricity and gas supply and, thereby, excludes other policy options.⁴

However, the existence and expansion of EU energy market regulation contrasts with the historical reality of energy liberalization in Member States, over the past two decades. Despite

⁴ Some political scientists would refer here to the EU exerting governance. However, as the notion of governance is usually employed inconsistently in research, we avoid that notion (for a discussion of the notion of governance in EU studies see Kohler-Koch 2006). In this study we will generally speak of EU energy market regulation. As this study focuses on energy liberalization, energy market regulation refers to electricity and gas market regulation. Energy, legislation and energy regulation will sometimes be used interchangeably. Regulation can be understood as the implementation of a particular public policy approach to a policy area or policy issue (chapter 2.4). In this study energy market regulation is the result of a particular public policy applied to the economic organization of electricity and gas supply. This indicates that regulation may often refer to more than just legislation. In the case of market regulation, it also includes necessary institutions sustaining a particular economic organization of energy markets. Those cases where regulation basically refers to legislation and those instances where it is used in a more comprehensive way will usually be clear from the context.

being subject to the same EU influence on energy liberalization Member States show different liberalization histories and trajectories in terms of speed and scope.⁵ This questions the effectiveness of EU influence in prescribing and enforcing a particular form of market regulation for electricity and gas supply on the national level and, thus, the effectiveness of EU energy market regulation in Member States.

Investigating the EU's influence on energy liberalization provides us not only with a historical understanding of how the EU expanded into electricity and gas market regulation and the role played by the EU in energy liberalization in Member States. In the context of the development of an EU regulatory framework for the energy market since the 1990s, the astonishing fact that Member States seemed willing to cede control to the EU over a highly important public policy area, and the unclear effect of EU energy market regulation in the context of energy liberalization in Member States, this study lays the basis for better understanding the influence of EU energy market regulation. Factors that explain the scope and limits of EU influence in terms of energy market regulation are focused on. Understanding them is very important in the light of energy market integration and the establishment of an internal energy market. It is necessary to understanding how EU energy market regulation works as it forms an important pillar on which the internal energy market is based. A failure or (partial) collapse of the EU regulatory architecture sustaining the internal energy market is likely to trigger huge social and economic costs.

Despite setting the focus on a particular regulatory issue, which is the economic organization of electricity and gas supply, energy liberalization provides us with an excellent starting point to investigate EU energy market regulation and gain insights of general relevance. It requires us to investigate the development of EU electricity and gas market regulation, and to establish and analyze those factors determining the influence of EU energy market regulation on the national level. Thus, the research question guiding this study can be formulated as follows:

How did the EU gain influence on energy liberalization in Member States and which factors determined its scope?

To answer the first part of the research question we outline the EU's expansion into electricity and gas market regulation, which enabled the EU to exert influence on energy liberalization in Member States. The second part of the research question is addressed by investigating the

⁵ See for more information the report from the Commission to the Council and the European Parliament concerning progress in creating the internal gas and electricity market (COM (2008) 192).

EU's influence on energy liberalization in selected Member States in the Baltic Sea Region. With this empirical focus, this study differs from other research, as it does not focus solely on Western Europe. By looking at the Baltic Sea Region, this study sheds light on a region that, in terms of energy liberalization and energy market integration, has been neglected in political science as well as economic research so far. Most studies focused in the past on Northwestern Europe by pointing to the region's progress with liberalization and market integration. Compared to this, the Baltic Sea Region is a patchwork. Nevertheless, the establishment of competitive electricity and gas markets and the ongoing energy market integration are expected to progress in the long run as far as it concerns EU Member States in that region. Electricity and gas connections are subject to enhancement in the coming years, to ensure better interconnection of the countries in the Baltic Sea Region. Focusing on that region does not limit the validity of our insights. On the contrary, investigating the EU's role in energy liberalization in economically, politically and historically different countries provides for better understanding the general factors and mechanisms determining the EU's role in energy market regulation.

1.2 THEORETICAL AND PRACTICAL RELEVANCE

From a theoretical point of view and at first glance this study contributes to the growing area of Europeanization research, since based on the research question it investigates the EU's influence on energy policy on the national level, in the form of energy liberalization. Moreover, by referring to the state-of-the-art discussion following later, it will be responsive to the main conceptual/theoretical and methodological criticisms advanced by various scholars in recent years. That critique has mainly been directed at how studies have conceived and measured the role of the EU, often concluding that EU influence has been overestimated in past studies. This study boils the critique down to the problem of capturing, attributing and isolating EU influence. With regard to capturing EU influence, this study establishes a new and narrow concept for EU influence that focuses on the particular quality that distinguishes EU influence from other sources of influence leading to policy change in Member States. By emphasizing the issue of political legitimacy related to EU influence this study provides the theoretical basis for Europeanization research to expand beyond policy implementation studies. In the past, Europeanization studies have often been criticized to be policy implementation studies, questioning the practical relevance of a thorough understanding of

how the EU exerts influence on the national level. With regard to that, and from a practical point of view, this study sharpens the analytical focus of Europeanization research.

This study shows how Europeanization can be understood as a clearly complementary research area for European Integration studies by completing the picture of European Integration. This can be illustrated with the research question guiding this study. By investigating the same issue from a European Integration perspective, conclusions would most likely center on Member States and the power they assigned to the EU to influence energy liberalization on the national level. By addressing the same issue from a Europeanization perspective the analytical focus shifts towards the reasons why EU influence with regard to energy liberalization has different impacts on Member States.

This study reminds us that European Integration is a very complex process that consists of two phases and that Member States matter even after seemingly successful integration has occurred in a particular policy area. Understanding the second phase of European Integration is as important as the first phase, and may be even more relevant from a practical point of view. So far, our understanding of European Integration has been shaped extensively by European Integration approaches. Thereby, we have implicitly neglected a very sticky part of the process. Understanding the factors that modify EU influence in Member States casts light on the limits of European Integration in certain policy areas. This becomes highly important as the EU expands into extremely complex policy areas, such as monetary or energy policy, where policy failure or systemic risks are likely to trigger huge economic and social cost, and even have the potential to put past European Integration achievements at risk.

1.3 STATE OF THE ART

The research question addresses a rather new research subject in political science. In recent years, a new research area called Europeanization emerged in EU studies aiming at better understanding of how the EU impacts on the national level (for an excellent overview of Europeanization research see Graziano and Vink 2008). This is in no way an undisputed issue. Some scholars stress the relevance of the EU for change at the domestic level, while others take a very skeptical stance on it.

Majone's (1997) notion of the European regulatory state is particularly interesting for this study. According to him, Member States voluntarily transfer regulation of a policy area or parts of it to the EU (for example banking supervision or food safety standards). They do so,

by expecting that the EU will exert regulation at the domestic level similarly to an independent regulatory agency. The delegation to autonomous institutions is supposed to raise credibility regarding specific political commitments (e.g. non-discrimination, application of standards, etc.). According to Majone (1997: 144), energy sector liberalization in EU Member States could then be portrayed as a result of EU energy policy and, hence, the EU's regulatory impact on the national level.

While Majone sees a proliferation of the European regulatory state in various policy areas, other scholars are more critical about it. They believe that the role of the EU is often exaggerated and emphasize other factors causing change on the national level, such as globalization and political interests at the domestic level. They minimize the role of the EU if not denying it at all (see for example Bomberg and Peterson 2000; Verdier and Breen 200; Levi-Faur 2002, 2004, 2008; Jordana et al 2006).

This controversial debate is not surprising. Despite that Europeanization research witnessed significant growth during the last decade, the move from concept to theory, in terms of how the EU impacts the national level, is still not accomplished (Lehmkuhl 2008: 338). Europeanization research still lacks a proper conceptualization of causality. Ambiguity also exists regarding the definition of Europeanization. What does this term encompass by referring to the impact of the EU on the domestic level? In addition, Europeanization studies often show significant methodological deficiencies. As Haverland (2006: 134) points out, whether and to what extent the EU matters are questions, which only a few scholars have tried to address explicitly and systematically. Most studies look at a single policy area or a single Member State and lack variance in the explanatory variable, which leads to conclusions with limited validity (Haverland 2005, 2006; Holzhacker and Haverland 2006).

Moreover, since Europeanization is a young research area, it still has empirical blind spots. This also applies to the area of energy policy in Europe (Lehmkuhl 2008: 348). Nevertheless, some studies exist (see for example Eising 2000, 2001, 2002; Andersen 2001; Claes 2002; Van den Hoven and Froschauer 2004; Coen 2005; Bartle 2006; Holm Pedersen 2006; Parson 2007; Bulmer and Dolowitz 2007; Andersen and Sitter 2007; Bauby 2007; Schneider 2008). However, none of them address the question of whether and to what extent the EU matters in energy policy on the national level or explicitly aims at tackling the conceptual and methodological deficiencies mentioned above. Levi-Faur's (2002) study on the net impact of Europeanization and Jordana's et al (2006) study on the limits of Europeanization are both

exceptions, since they explicitly aim at isolating the EU's role in sector reforms on the national level.

Finally, it is important to have a look at the economic literature on energy sector liberalization in Europe. Compared to the rather limited political science literature on that topic, economists provide us with various and extensive studies (see for example Midttun 1997; 2001; Newbery 1999; Pineau and Hämäläinen 2000; Arentsen and Künneke 2003; Finon et al 2004; Finon and Midttun 2004; Pineau et al 2004; Robinson 2004; Glanchant and Finon 2005; Helm 2005; Eberlein 2005, 2008; Seralle 2006; Sioshansi and Pfaffenberg 2006; Thomas 2006; Sioshansi 2008). Despite their considerable quantity, economic studies are in general biased towards analyzing production, transmission and distribution as well as consumption of energy. When discussing the emergence of a new European regulatory architecture in the energy sector, most of them lack the conceptual and methodological diligence when analyzing the role of the EU. They employ sketchy arguments based on general assumptions rather than thorough analysis. However, being critical towards those studies does not mean dismissing their value. They provide fertile ground for this research project, since they draw attention towards the relevant economic factors and mechanisms at play in energy liberalization and creation of an internal energy market.

1.4 STRUCTURE OF THE STUDY

This study is structured along the following lines. In chapter 2, we address the political economy of electricity and gas supply. It is based on literature about energy liberalization and aims at systemizing the reasons contributing to energy liberalization along two factors—economic and political justifications. We also discuss energy security and energy liberalization as well as energy security concerns in competitive markets. The latter is likely to influence the future development of EU energy market regulation. Chapters 3 and 4 provide the theoretical and analytical framework guiding the investigation of EU influence on energy liberalization. Chapters 5 and 6 discuss the rise and development of EU energy market regulation for electricity and gas. It is complemented by chapter 7. It takes a closer look at how the EU exports its energy market legislation and as such energy liberalization. The chapter provides not only a comprehensive overview of EU regulation but it is necessary as some of the case studies in the Baltic Sea Region, in chapter 8, were subject to EU influence for some time as Accession Candidates. Chapter 9 discusses the insights gained in the individual case studies and draws general conclusions with regard to the factors determining

EU influence on energy liberalization in Member States. It also provides to some extent an assessment of the theoretical and analytical framework. Chapter 10 addresses future developments and challenges in the context of EU energy market regulation with a focus on the Baltic Sea Region. In chapter 11, we conclude this study by summarizing the key insights and discussing their implications with regard to guaranteeing the certainty and stability of EU energy market regulation. Finally, we briefly address the relevance of this study for better understanding European Integration.

“Advance token to nearest Utility. If unowned, you may buy it from the Bank. If owned, throw dice and pay owner a total of ten times the amount thrown.”

–Chance card in Monopoly (2008)

2 POLITICAL ECONOMY OF ELECTRICITY AND GAS SUPPLY

To understand EU influence on energy liberalization and those factors that may have determined EU influence on energy liberalization in Member States in the past, it is necessary to address the political economy of electricity and gas supply. The notion of political economy emphasizes the role that politics play in determining the economic organization of electricity and gas supply. The literature on energy liberalization indicates two categories of factors that were relevant in shaping the economic organization of electricity and gas supply in the past: economic and political justifications. They shaped energy market regulation before liberalization (chapter 2.2) and were decisive in permitting energy liberalization (chapter 2.3).

As already mentioned, energy liberalization is about establishing a competitive market environment for electricity and gas supply (chapter 2.4). It reflects a public policy shift, which translates into new energy market regulation basically consisting of two elements: changing the rule of the game and changing the behavior of market participants. This chapter also addresses energy security as it had influenced the economic and political justifications for energy liberalization in the past (chapter 2.5) and is likely to remain important as energy security concerns do not vanish with the establishment of competitive electricity and gas markets. On the contrary, new concerns may arise and reshape economic and political justification and, eventually, energy market regulation (chapter 2.5).

2.1 RISE OF THE ELECTRICITY AND GAS INDUSTRY

The electricity and natural gas industry started with small, local power stations and distribution networks. Eventually, they grew and became huge and vital public utilities (Mez et al 1997: 3; Arentsen and Künneke 2003: 4). For electricity the end of 19th century marks the starting point for its successful service expansion. The construction of long-distance

transmission lines made the electrification of whole countries possible. In addition, electricity prices for consumers were significantly reduced by replacing steam engines with turbines and increasingly exploiting economies of scale for power generation (Mez et al 1997: 3). The expansion of electricity was also promoted politically. Governments in Europe and the United States supported public electrification programs aiming especially at rural areas.⁶ The same applies to the communist countries during that time.⁷ The expansion of the gas industry followed a few decades later, starting in the 1960s. Its services were predominantly linked to heating residential, commercial and industrial areas (Arentsen and Künneke 2003: 4). Similarly to electricity, gas replaced dirtier sources of energy, such as wood, coal or oil (Stern 2004: 42). In the West it was in particular the expansion of cogeneration technology in the United States and later in Europe that led to a significant increase of gas consumption.⁸ The example of cogeneration used in industrial production and later electricity generation based on combined heat and power demonstrates the increasing interrelation between the gas and electricity industry.

2.2 ELECTRICITY AND GAS SUPPLY BEFORE LIBERALIZATION

With the increasing consumption and reliance on electricity and gas, guaranteeing their supply became a political priority (Nohlen 2002: 77). The German notion *Energiewirtschaft* illustrates that energy supply was seen as a separate area of the economy. As a consequence, in most European countries electricity and gas supply were made subject to a particular form of market regulation that aimed at ensuring a long-term planning horizon with regard to electricity and gas supply to achieve a high level of energy security. In practical terms it resulted in an economic organization of electricity and gas supply that was absent of competition and often characterized by strong state intervention. The reasons for that form of

⁶ In the 1930s, President Franklin D. Roosevelt made rural power a national issue in the United States and created the Rural Electrification Administration (REA) tasked with providing electricity to the entire population and to catch up with Europe, which was at that time in terms of electrification ahead of the United States (Nye 2004: 187).

⁷ Lenin's famous phrase, *Communism is Soviet power plus the electrification of the whole country*, captures the vital role assigned to the energy sector for social and economic progress. In the Soviet Union, this statement was followed by the GOLRO Plan, a key element of the Soviet Union's long-term electrification strategy (Lutz 2004: 70).

⁸ Originally, cogeneration was used mainly by industrial companies. Gas was used as a heating source for production while the by-product—electricity—was sold to local utilities. Later, cogeneration became increasingly popular for thermal power plants. Contrary to the previous case, it was the by-product heat, which was sold to industrial companies or households (besides electricity). This coined the expression combined heat and power (CHP).

market regulation, which is sometimes referred to as planned economy, reflect a specific set of political and economic justifications

2.2.1 POLITICAL JUSTIFICATIONS

From a political point of view it was clearly the vital importance of energy supply for the wellbeing of society and economy that justified the particular economic approach applied to electricity and gas supply and in some countries direct state involvement in the provision of energy services. With the increasing consumption of electricity and gas and their role in economic progress, policymakers assigned electricity and gas supply the status of essential services, or public utilities. Their provision was understood to be guaranteed by the government to the entire society and economy of a country (Atentsen 2004: 72; Genoud and Dubash 2004: 256; Finger 2004: 32). A similar reasoning applied to gas supply. Either domestic reserves or external dependency provided for the political justifications to make gas supply subject to an economic organization absent of competition and characterized by strong state interference and control. In cases where countries were endowed with fossil fuel resources, the particular market regulation was also to benefit the country in terms of income from its gas resources (exports). In cases where countries were dependent on gas imports, market regulation was often part of a country's attempt to mitigate the economic and political risks related to external dependency.

2.2.2 ECONOMIC JUSTIFICATIONS

The political justifications for the particular energy market regulation approach were also influenced by economic arguments on why energy supply should not be left to market forces alone. Those economic arguments were very important as they guided the public policies applied to the economic organization of electricity and gas supply for most of the 20th century until the late 1980s. Electricity and gas supply were seen as being prone to market failure. Along with the natural monopolistic characteristics of the network-based energy sector, electricity and gas supply were seen as being characterized by economic specifics that would, in a competitive and free market economy, clearly work at the detriment of energy consumers (in effect social and economic progress) and, of course, be harmful to energy security.

Electricity and Gas Supply and the Risk of Market Failure

Market failure was a very powerful argument. The extremely costly investments that characterized electricity and gas supply as well as the long planning horizon raised doubts on the ability of private companies in competitive electricity and gas markets to meet demand in a satisfactory way (Mez et al 1997: 5; Arentsen and Künneke 2003: 47). “In a satisfactory way” meant essentially that companies would provide sufficient electricity and gas at affordable prices. To minimize the risk of market failure, many countries opted for the establishment of monopolistic or oligopolistic supply structures for electricity and gas and often participated directly in the supply by owning and steering the involved energy companies. In addition to reducing the risk of market failure, the limitation of energy market participants was also driven by aiming at economies of scale (Arentsen and Künneke 2003: 47; Dubash 2004: 256).

In the context of economies of scale, electricity supply was also subject to the goal of optimizing the power generation structure. This was reflected by the merit order approach. Relying on a specific set of power generation facilities was expected to cover demand in the economically most efficient way, resulting in low electricity rates for consumers. The following table illustrates the merit order for different sources of electricity.

Table 1: Merit Order for Different Sources of Electricity

Generation source	Capital costs	Fuel costs	Merit order
Nuclear	High capital costs	Low	Base load
Coal	Medium capital costs	Low (volatile)	Base load
Hydro	High capital costs	Low	Base load
Gas	Low capital costs	High (volatile)	Peak load / Intermediate load (balancing)
Oil	Low capital costs	High (volatile)	Peak load / Intermediate load (balancing)
Renewables (wind, photovoltaics, other)	Medium to high capital costs	Depending on primary energy source	Intermediate load

Note: Capital and fuel costs are indicated in a comparative way. Wind and photovoltaics need balancing capacities (usually gas) during off times. The increasing use of hydro pump storage makes it difficult to qualify hydro anymore as a renewable energy. Sources: Banks (2007: 294, 327) and own research.

As the table illustrates the merit order refers to the appropriateness of a source of power to serve a particular electricity load on the demand side. Electricity demand was understood to

be composed of base load, electricity online all the time, intermediate and peak load. The latter refers to electricity demand arising due to punctual increase in consumption, such as during lunchtime at noon, or early in the evening when people go home and have dinner. The merit order illustrates very well why electricity and gas supply in the past were often referred to as being subject to a planned economy approach.

As electricity supply investments followed the merit order approach and were driven by the supply side, the risk of economic inefficient investments and, in particular, gold-plating increased. Gold-plating refers to the problem that as returns on investments were guaranteed, the appointed energy companies were likely to exceed necessary investments. In the worst case, this would lead to costly and unnecessary administrative buildings and exclusive headquarters as well as overcapacities with regard to power generation.⁹

The Natural Monopolistic Characteristic of the Network-bound Energy Sector

The natural monopolistic characteristic of electricity and gas supply was another important economic argument for a market regulation absent of competition. Large and vertically integrated electricity and gas companies were understood as economically the most efficient way to exploit economies of scale (Mez et al 1997: 5; Arentsen and Künneke 2003: 5; Dubash 2004: 256). Vertical integration referred to the supply chain that characterizes the provision of electricity and gas as illustrated in the following table.

⁹ Often gold-plating is referred to as a problem of state-owned companies and absence of competition. However, business history provides evidence for similar excessive spending by many private companies.

Table 2: The Supply Chain of Electricity and Gas

Supply chain	Electricity	Gas
Production / Extraction and processing	Transformation of primary energy into electricity	Extracting gas from deposits and processing gas (removal of CO ₂ and sulfur compounds)
Storage	Pumped storage of electricity (e.g. hydropower plants)	Storage of gas (e.g. underground)
Transmission	Transport of electricity through high voltage transmission lines	Transport of gas through high-pressure pipeline system or shipped in the form of liquefied natural gas (LNG)
Distribution	Transport of electricity through low voltage transmission lines to end consumers	Transport of gas through low pressure distribution network system to end consumers
Supply	Retailing electricity to consumers (wholesale, commercial, households)	Retailing gas to consumers (wholesale, commercial, households)

Sources: Arentsen and Künnke (2003), Genoud and Finger (2004: 30) and personal research.

Those vertically integrated energy companies incorporated in most cases all or many elements of the supply chain. Given the complex supply chain and that investments in infrastructure were supply side driven, vertical integration, was also perceived as an organizational necessity to facilitate and guarantee the economic coordination in relation to electricity and gas supply (Newbery 1999: 188). The supply system of electricity and gas goes beyond the simple delivery of energy to consumers. In order to perform well the gas and electricity networks require to be balanced. It means evening out load fluctuations and maintaining a constant balance between supply and demand (Arentsen and Künnke 2003: 18). The complexity of the transport system for electricity and gas clearly supported tight governmental control and intervention.

2.2.3 ELECTRICITY AND GAS SUPPLY ABSENT OF COMPETITION

As among European countries the economic and political arguments concerning the economic organization of electricity and gas supply were very similar, the resulting market regulation did not differ very much. The aim of energy market regulation was to ensure a long-term planning horizon for electricity and gas supply. National electricity and gas industries were characterized by a planned economy approach and more or less absence of competition. A

few large vertically integrated companies performed electricity and gas supply. In terms of market regulation, differences were the consequence of varying historical institutional traditions (Mez et al 1997: 4; Arentsen and Künneke 2003: 5). It concerned for example the scope of administrative centralization applied to electricity and gas, such as on the national, regional or local level. Countries also differed with regard to the ownership and legal approaches applied to the electricity and gas companies, for example state-owned public companies or private franchising agents.

Interestingly, in terms of economic organization Western European countries did not differ fundamentally from the economy approach applied in the socialist countries on the other side of the Iron Curtain. Differences concerned mainly technological and environmental aspects and, of course, the degree of administrative centralization and the scope of governmental influence. The latter was particularly evident as the energy sector in socialist countries was an essential part of a centrally planned economy. However, by the end of the 1980s, confronted with economic reforms and a transition to market economies, the former socialist countries did not particularly differ with regard to the shift in economic organization of electricity and gas supply from capitalistic countries in Western Europe. Both groups of countries were by the mid-1990s to become subject to a paradigmatic change with regard to the economic organization of electricity and gas supply, commonly referred to as energy liberalization.

2.3 LIBERALIZING ELECTRICITY AND GAS SUPPLY

In the light of the main reason determining electricity and gas market regulation in the past, which was ensuring electricity and gas supply – perceived as essential utilities for modern societies and economies to function and progress (Øystein 2006: 32) – the shift that energy liberalization brought is astonishing as it meant a fundamental break with the past. The IEA's (2002a) definition of energy liberalization captures that change on the level of economic organization and indicates a clear shift in energy policy and market regulation, by referring to energy liberalization as:

“[...] the processes underway throughout the world that transfer decision-making in energy industries from governments to private enterprises and consumers. It refers to a gradual substitution of more open and competitive [energy] markets for publicly-regulated monopolies. It includes the privatization of government held assets, such as controlling stakes in energy producing and distribution companies.”

Energy liberalization reflects a public policy shift with regard to the economic organization of electricity and gas supply. In practical terms, it refers to the establishment of a competitive market environment for the supply of energy. Such a shift could only occur if economic and political arguments, advanced in the past, significantly changed and, eventually, justified the new competitive market approach to electricity and gas supply without compromising energy security.

2.3.1 ECONOMIC JUSTIFICATIONS

Trust in the superiority of competitive markets for the delivery of goods and services already existed at the time when electricity and gas supply was subject to a planned economy approach (Baldwin and Cave 2002: 210–212; Newbery 1999: 2). The application of competitive market approach was prevented by the looming risk of market failure and the natural monopolistic characteristic of the network-bound energy sector. This changed, by the end of the 1970s, as energy markets were increasingly understood to have reached a certain degree of maturity. Along with an increasing political trust in regulation, market failure was estimated to be lower as in the past and, most important, manageable, permitting a move towards a more competitive market environment. The latter would allow for reaping the benefits of economic efficiency and as such lower electricity and gas prices and innovation. This commoditization, in particular of electricity, also contributed to the success of liberalization as it facilitated the political justification.

The Matured Energy Sector

In simple terms, the notion of a mature electricity and gas sector made the risk of market failure and the natural monopoly argument obsolete. The notion is usually not explicitly discussed in the economic literature on energy liberalization (see Einhorn 1994; Newbery 1999; De Vany 1995). According to the IEA (2002a) key characteristics of a matured energy sector are an increasing number of market participants, technological innovation and, especially, the increasing size and sophistication of financial markets. Obviously, the latter refers to an enhanced ability of private companies to deal with long-term and cost-intensive investments and their risks.

However, trust in private market actors to be able to supply electricity and gas started in the late 1970s in the United States. It was related to the Public Utility Regulatory Policies Act

adopted in 1978, which allowed independent industrial power producers to sell their electricity to state-owned utilities (Lutz et al 1997: 7). The cases where independent private energy companies (in effect industrial companies) managed to profitably sell electricity were cited as evidence to challenge the prevailing assumption that supply was best guaranteed by state-owned companies in markets absent of competition (Dubash 2004: 256).¹⁰ This paved the way first in terms of economic thought and, eventually, in politics to call for a more competition-based economic organization of electricity and gas supply. All that took place in the United States and shifted two decades later to Europe.

Competition Leading to Increasing Economic Efficiency

The notion of matured energy markets permitted an important second step that principally influenced political arguments in favor of energy liberalization. In a matured energy market it was possible to reap the economic benefits of competition. Unsurprisingly, it became the main argument for energy liberalization (Newbery 1999: 2). In other words, replacing the visible hand of the government by the invisible hand of the market was believed to reduce regulatory and economic inefficiencies resulting from the planned economy approach by making energy supply subject to a competitive market environment (Newbery 1999: 171). A key argument put forward to support energy liberalization was the issue of gold-plating, mentioned earlier. Market forces were expected to set the appropriate incentives for energy companies to reduce their costs and increase productivity. Competitive markets were expected to provide clear advantages such as allocative efficiency, cost reduction and innovation (Cameron 2007: 5). As a consequence, switching to competitive markets would not simply be a change of the economic organization of electricity and gas supply, but was expected to tangibly benefit consumers (Baldwin and Cave 2002: 210)

Commoditization of Electricity and Gas

In the past electricity and gas were perceived and treated as special goods (Mez et al 1997: 5; Arentsen and Künneke 2003: 46). In addition to the trust in the maturity of the energy sector, it was also a changed understanding of electricity and gas that provided the conceptual basis

¹⁰ According to Lutz et al (1997: 8), those power producers were only seemingly economic competitive. The relative high costs of nuclear power plants that were built at the same time were easy targets to compete with and for those companies to beat. In addition, the case of profitability of a few private companies of which the core business was not electricity supply can be considered to be rather weak evidence as they were performing in an environment absent of competition.

to argue for energy liberalization. Treating electricity and gas as any other commodity facilitated the political justification for energy liberalization. In that sense, the break with the past approach to electricity and gas supply organization and market regulation reflects a break with how electricity and gas were perceived for a long time.

2.3.2 *POLITICAL JUSTIFICATIONS*

As Hall (1989: 390) points out, economic theories do not acquire influence independently. They need to find a way to gain political legitimacy in order to have an impact. This is also true for energy liberalization. Two factors enabled energy liberalization to gain political legitimacy. Those were an increasing political trust in regulation to prevent market failure and a general change in the view of the legitimate role of the state in economic activities.

Increasing Political Trust in Regulation to Prevent Market Failure

Europe witnessed during the 1980s an increasing trust in the ability of regulation to manage the risk of market failure. According to Majone (1990) liberalization in Europe expressed a shift in addressing market failures (Majone 1990: 2). In 1990, he diagnosed an increasing confidence among European policymakers in regulation to address the problem of market failure in the economy, such as in the energy sector, the transport sector and telecommunications. According to him, as liberalization spilled over from the United States to Europe it reflects the historical difference in the acceptance of market regulation between Europeans and Americans.¹¹ An increasing trust in market regulation allowed reducing direct state intervention in the economy. However, the dismantling of governmental intervention was outbalanced by new regulatory frameworks and regulatory actors. In effect, energy liberalization led to a re-regulation of electricity and gas supply reflecting a new economic organizational approach characterized by a competitive market environment.

¹¹ Regulatory reforms and the increase of independent regulatory agencies gave rise to an array of publications in political science. Some saw a new form of state arise, such as the regulatory state (Majone 1994; 1997; McGowan and Wallace 1996; Loughlin and Scott 1997; Moran 2002; Eberlein and Grande 2005). Others proclaimed the age of governance and saw regulatory reforms and the rise of independent regulatory agencies as expression of a fundamental and widespread change in the governance of capitalist economies (Jordana and Levi-Faur 2004; Braithwaite 2008).

The Revisited Legitimate Role of the State in Economic Activities

That energy liberalization coincided with a changed understanding concerning the legitimate role of the state in economic activities politically facilitated the process (Newbery 1999: 2). In that context, the idea of energy liberalization found support in economic neoliberalism, sharing to some extent the same economic intellectual background. Along with economists, neoliberal policymakers shared the understanding that state intervention in the economy was inefficient (Harvey 2005: 2). According to them, the role of the state in the economy should be restricted to provide an institutional framework in which the economic activities of private actors can take place. With regard to energy liberalization, it was Great Britain under Margaret Thatcher that first engaged in that process in Europe in the late 1980s. The initial success in terms of lower energy prices for consumers made the underlying economic approach attractive for other European governments (Braithwaite 2008: 5). The underlying economic assumption and neoliberal political framing did not limit the supporters of energy liberalization to the political right. In the 1990s, the political left also adopted neoliberal principles for governing the economy (Braithwaite 2008: 5). Thus, economic and political justification for energy liberalization was not limited to a particular political spectrum. Interestingly, economic neoliberalism gained acceptance even on the other side of the iron curtain. The free and competitive market served as a template for economic reforms, initially to revive planned economies and, later, to transform those into market economies (Braithwaite 2008: 5).¹²

2.3.3 ENERGY LIBERALIZATION AS A PUBLIC POLICY SHIFT

The economic and political justifications for energy liberalization reflect a clear public policy shift in the economic organization of electricity and gas supply. It involves a shift in public policy focus and performance expectation. In terms of policy focus policymakers are no longer driven by avoiding market failure (and in some cases managing energy resources) but by ensuring competitive electricity and gas markets. The shift in policy focus reflects new performance expectations. While in the past the aim was to ensure the supply with electricity and gas at affordable prices, a liberalized energy market sets the focus on ensuring an economic efficient provision of energy. Given a matured energy sector, the competitive market is expected to provide for reasonable energy prices and good services. This also

¹² Mikhail Gorbachev engaged in market reforms for the Soviet Union in the 1980s inspired by the economic neoliberal reforms undertaken in other socialist countries, such as Hungary and Yugoslavia, as well as China (Priestland 2009: 537).

indicates a new public performance expectation, which sees energy supply no longer being subject to fulfilling public service obligations. With energy liberalization, the public performance expectation is based on the assumption that a competitive market environment will give rise to a competitive economic structure, in the form of successful energy companies that would provide not only innovative but also customer-tailored services. The following table provides an overview of ideal-type categories that illustrate the public policy shift that energy liberalization reflects.

Table 3: Liberalization a Public Policy Shift in Performance Expectations

Public Policy Approach		Public Property	Public Utility	Commodity
Policy Focus		Managing energy resources	Avoiding market failure	Ensuring competitive markets
Performance expectations	Economic	Maximization of state revenues	Ensuring reasonable consumer prices and energy services	Ensuring economic efficient provision of energy services
	Public	National welfare and prosperity	Fulfilling public service obligation	Providing competitive economic structures and allocative efficiency

Sources: Newbery (1999), Arentsen and Künnke (2003: 48), Cameron (2007) and personal elaboration.

The policy approach “Public Property” refers to countries with domestic gas reserves. Most European countries employed a “Public Utility” approach to electricity and gas supply, prior to liberalization. The table reflects the notion of a matured energy sector, the increasing trust of policymakers in market regulation to manage and reduce the risk of market failure as well as the expected benefits of competitive markets in terms of economic efficiency gains.

2.4 REGULATING FOR COMPETITION IN ELECTRICITY AND GAS SUPPLY

As energy liberalization boils down to a shift in the economic organization of electricity and gas supply, it entails changes to energy market regulation (Cameron 2007: 29). Regulatory changes can also be understood as the implementation of the public policy shift that energy liberalization reflects.

The following table highlights the changes that the shift in public policy entails from a supply chain perspective. It permits understanding the changes in energy market regulation necessary to establish a competitive market environment for electricity and gas supply.

Table 4: Liberalization as a Public Policy Shift in Economic Organization of Energy Supply

Public Policy Approach		Public Property	Public Utility	Commodity
Economic Organization of Energy Supply	Product Approach	Uniqueness	Uniqueness	Commodity
	Supply Chain Approach	Integrated system with limited number of actors	Integrated system with limited number of actors	Disintegrated system except for the network, number of actors determined by market
	Industry Structure	Vertically integrated	Vertically integrated	Unbundled
	Market Structure	Closed market	Closed market	Third party access to network and market
	Ownership Structure	Public dominance / Franchising agent(s)	Public dominance / Franchising agent(s)	Private dominance
	Market Opening	None	A few (large) eligible consumers	All consumers can access the market
Resulting Market Environment		Monopolistic / Oligopolistic	Monopolistic / Oligopolistic	Competitive

Without going into detail the table shows that energy liberalization causes the supply chain to change from a monopolistic integrated system to a competitive disintegrated system. The process entails a fundamental restructuring of the electricity and gas industry. The industry and market structure change as well as the ownership structure as private companies enter the electricity and gas supply business. The end of the process is marked by the establishment of a competitive market environment.

However, the change in the supply chain approach does not occur by itself. For this to happen, or in other words the implementation of the new public policy approach, requires amending the existing regulatory framework sustaining the previous economic organization of electricity and gas supply. The set of rules and institutions has to change to provide the basis

for a competitive market environment to evolve. To put it simply, this regulatory change boils down to changing the rules of the game (chapter 2.4.1) and changing the behavior of market participants (chapter 2.4.2) in a way beneficial to the establishment of a competitive market environment. Those regulatory changes are commonly referred to as regulating for competition.

2.4.1 CHANGING THE RULES OF THE GAME

The removal of exclusive rights, the introduction of freedom of entry and freedom of investment are necessary factors to create a competitive market environment (Cameron 2007: 10). Those are probably the most elementary rules for competition to start. The focus here, however, lays in changes to regulation that determine the industry and market structure. They may be understood as changes to the rules of the game reducing the potential for discrimination of new market participations and providing the basis for the development of an open and competitive market environment. In other words, those regulatory changes provide the basis for establishing a level playing field in the network-bound energy sector. In the context of changing the rules of the game, key amendments to energy market regulation, or energy legislation, are:

- Unbundling of vertically integrated companies
- Third party access (TPA) to networks
- Market opening for (eligible) consumers

Unbundling of vertically integrated companies: The concept of unbundling aims at avoiding discrimination of new market participants, given the natural monopolistic characteristic of transmission and distribution networks.

As we have learned the network-bound energy sector was characterized by vertically integrated companies. Freedom of entry and freedom of investment alone would be unlikely to contribute to the development of a competitive market environment. Incumbent companies, possessing energy networks, would be able to discriminate new market participants eager to engage in production or supply by denying them access to the electricity or gas network or impede in another way the profitability of their business. Under such circumstance, it is necessary to reduce the potential for unfair discrimination. Unbundling, in effect the separation of business activities of vertically integrated

company, provides the solution. It reduces the conflicts of interests within companies engaged in energy supply, transmission and distribution activities and, thus, with the potential to discriminate against other (new) market players (Cameron 2007: 32). The following table shows the three forms of unbundling that are usually distinguished.

Table 5: Unbundling: Reducing Potential for Unfair Discrimination

Organizational unbundling	Legal unbundling	Ownership unbundling
Separation of accounts: Introduction of separate accounts for business activities.	Legal separation of business activities: Spin-off network activities (transmission and distribution) from the rest of business activities into a new legal entity. Ownership may be exerted by the former business owner.	Ownership has to be exerted by an independent third party (private or public).
Functional separation: In addition to separate accounts for business activities, introduction of separate management structures.		
<i>Aim: Reducing the potential for unfair discrimination with a focus on network access by addressing incumbent market participants' risk of a conflict of interests.</i>		

The table shows that approaches to unbundling differ in scope. It basically reaches from keeping vertically integrated companies almost intact to breaking them up along different business activities and establishing new legal entities performing those activities. The latter may be owned by the original company or by an independent third party. In particular, ownership unbundling may be difficult to implement and be legally contested as it may conflict with national property rights.

Another aspect of unbundling is the natural monopolistic characteristic of the networks. One could argue that new market participants could simply enter the energy market by establishing new networks. Under such circumstances, the huge investments that this would require would make the development of a competitive market environment very unlikely. Besides that, another factor has influenced unbundling. Economically, network activities can be considered natural monopolies (Newbery 1999: 185). Competition among networks is economically undesired. One argument is that competition would reduce investments in network infrastructure given the high costs related to the establishment of networks. Another argument is that such competition would lead to an unnecessary duplication of networks. From an economic point this would lead to an inefficient allocation of economic resources. All those reasons may explain why after functional unbundling, countries often moved to legal

unbundling introducing regulatory approved transmission system operators (TSOs) and distribution system operators (DSOs) to operate the network system for electricity and gas.

Third party access (TPA) to networks: Similarly and related to unbundling is third party access (TPA). It also aims at avoiding discrimination of new market participants with regard to network access. Two forms of TPA can be distinguished, as outlined in the following table (Cameron 2007: 34).

Table 6: Third Party Access (TPA) to the Network: Negotiated and Regulated

Negotiated TPA	Regulated TPA
Negotiated agreement (involving network owner and market participants) ensures access to the network.	Regulation (legislation) stipulates the rules for access to the network supervised by the regulatory authority
Access conditions and fees: Set in the negotiated agreement.	Access conditions and fees: Regulatory approved.
<i>Aim: Reducing the potential for unfair discrimination with a focus on network access by enhancing new market participants' ability to enforce their rights to access the network.</i>	

The two different approaches to TPA outlined in the table differ basically in the way they allow new market participants to enforce their access right to the network. Obviously, there is a difference between negotiated TPA and regulated TPA. The former puts network owners in a better position vis-à-vis other (new) market participants wishing to access the network. Resources in financial and temporal terms as well as information asymmetries may put new market participants in an unfavorable negotiating position, if not even deter them from applying for market access. However, it can also be argued that negotiations among market participants are a key element of a competitive market economy. Nevertheless, the potential of unfair discrimination related to negotiated TPA has led many countries to apply regulated TPA.

Market opening for (eligible) consumers: A competitive market environment requires not only changes on the supply side but also on the demand side. Consumers must have freedom of choice concerning their supplier (Cameron 2007: 33). The notion of eligible customer, or in other words qualified consumer, is an important concept regarding market opening. In most countries, market opening was a two-step approach based on the quantities of energy used by individual consumers on an annual basis. In a first step, large consumers, such as industrial companies, became eligible customers and were allowed to access the energy market. Later in a second step, smaller consumers, such as households, followed and got the right to access the

market and choose their suppliers. As in the case of unbundling and TPA, the notion of eligible customer was stipulated in a country's energy legislation.

2.4.2 *CHANGING AND GUIDING THE BEHAVIOR OF MARKET PARTICIPANTS*

Of course, rules alone risk being ignored. Failures of compliance with the new rules of the game by market participants may be unnoticed if proper monitoring and enforcement bodies are missing. This requires assigning and establishing respective governmental bodies with the task of overseeing and enforcing the rules of the game. Those rules directed at the industry and market structure are usually enforced by independent energy regulators. In addition, energy liberalization and the creation of a competitive market environment also make the energy sector subject to competition rules enforced by the relevant national competition authority. All this is intended to guide the behavior of market participants in a way ensuring not only a level playing field on paper but also a truly competitive market environment. Thus, implicitly changing and guiding the behavior of market participants includes establishing an independent energy regulator as well as the application of competition rules and supervision by the competition authority.

Independent energy regulator: Simply changing the rules of the game is not the only regulatory change that may result from energy liberalization. Creating a level playing field in the energy market requires the establishment of an independent regulator (Cameron 2007: 31). Such a regulator monitors the compliance of market participants with the rules of the game, enforces those rules and reports on the development of a competitive market environment to policymakers. The reference to independence means that the regulator should not be subject to political influence. Its sole purpose should be to guarantee compliance by market participants with the basic rules of the game. Given that in most countries the incumbent energy companies were and still are in public ownership, independence and transparency of the regulator's activities plays an important role to ensure that, as a governmental body, the regulator does not discriminate against new market participants.

Competition authority and competition rules: New rules of the game in the energy sector are not sufficient to sustain a competitive market environment. Dominant (incumbent) companies may engage in various activities at the detriment of competition and, at the end, of energy consumers. Competition should work in favor of consumers. To allow this it is necessary to monitor the behavior of market players on the supply side and apply

competition rules to their behavior to maintain a competitive market environment. Competition is expected to put energy companies under pressure to provide fair prices and better service. This is achieved by the application and the monitoring of competition rules by the relevant national competition authority.

In sum, we can expect energy liberalization as a public policy shift to lead to a massive change to the existing rules of the game as well as making electricity and gas supply subject to competition law. This is expected to lead to a behavioral change of market participants. The latter is further sustained by the establishment of an energy regulator and making the network-bound energy sector subject to supervision by national competition authorities.

Energy liberalization and the commoditization of electricity and gas suggest that energy should be treated like any other commodity. However, the establishment of particular regulatory frameworks instead of merely applying competition rules shows that electricity and gas supply still differ from other economic activities. Why is that the case? The reason for establishing particular rules of the game for electricity and gas supply is that market failure also remains existent in a competitive market environment. In a pure competitive market environment energy companies would tend to secure their market share by remaining (or re-establishing) vertically integrated companies. Electricity and gas networks would act as natural monopolies and quickly transform the competitive market into an oligopolistic or even monopolistic market (Cameron 2007: 30). Eventually, as private companies are profit-seeking, consumers would be exposed to the risk of extortion and most likely face a decreasing quality of service.

In order to prevent market failure, electricity and gas supply cannot be left to competition rules alone but particular rules of the game have to be devised. Those are rules that prevent market failure from occurring by ensuring a competitive market environment. This explains why with regard to energy liberalization the notion of competition regulation is replaced by the notion of regulating for competition. Cameron's explanation (2007: 30) very well illustrates a seeming paradox of energy liberalization:

“The idea of ‘regulation for competition’ may seem perverse. After all, the aim of liberalization and deregulation is to allow competition to do the work of regulating rather than to leave it to a regulator. However, as competition will not naturally occur in markets where natural monopolies of transportation exist, it is necessary for regulation to provide a surrogate for competition.”

The notion of regulation for competition reflects what Majone (1990) already observed and what we discussed previously, the increasing trust of policymakers in European countries in the ability of market regulation to prevent market failure.

However, the notion of regulating for competition should conceptually raise concerns. Achieving a competitive market environment for electricity and gas similarly to other commodities where simple competition regulation applies may not be as simple as theoretically suggested by economists. In reality it may prove to be very difficult to be achieved. The notion of regulating for competition may be problematic as it conceptually averts any rethinking of the economic fundamentals. It risks leading into an endless process of political and regulatory measures and reforms to improve the competitive environment and to achieve the expected economic and promised political results.

2.5 ESTABLISHING COMPETITIVE MARKETS AND ENERGY SECURITY

The political and economic justifications for the economic organization of electricity and gas supply prior to energy liberalization were clearly influenced by energy security concerns related in particular to market failure but also, in the case of gas, to external dependency (chapter 2.2). It is necessary to take a closer look at energy security and energy liberalization (chapter 2.5.1) to better understand the role played by energy security concerns in permitting the establishment of a competitive market environment for electricity and gas supply. The political and economic justifications for energy liberalization were based on lower energy security concerns. Assuming that the public policy applied to electricity and gas remains subject to guaranteeing primarily energy security, we can also expect it to play an important role in determining the future of EU energy market regulation. For that reason we take a closer look at energy security concerns in a competitive energy market environment (chapter 2.5.2). The insights will partially feed into the discussion of current and future energy security concerns in EU Member States as well as trends and challenges in the context of EU energy market regulation (chapter 10.2).

2.5.1 ENERGY SECURITY AND LIBERALIZATION

In the past, energy security concerns have influenced the economic and political justifications for energy liberalization and, thereby, determined the course of energy liberalization in many countries (Newbery 1999: 419). In order to understand the relationship between energy

security and liberalization, it is necessary to take a closer look at the notion of energy security and how its content is reflected in the economic and political justifications for energy liberalization.

Many energy security definitions exist. While some emphasize external risks to energy supply (Øystein 2006: 12) others take a more systemic approach (Grubb et al 2006: 4051) or focus on specific measures (Gabler 2001: 872). There is no such thing as an exclusive definition. A classic approach is to define energy security as (Barton et al 2004: 5):

“[...] a condition in which a nation and all, or most, of its citizens and businesses have access to sufficient energy resources at reasonable prices for the foreseeable future free from serious risk of major disruption of service.”

Based on this definition and others we can identify three risk dimensions outlined in the following table, which can be filled with particular risk contents. The table provides a limited overview of the most generic ones employed in energy security definitions or related literature (Görres-Gesellschaft 1986: 269; Gabler 2004: 872; Schmidt 2004: 191; Grubb et al 2006: 4051; Sébille-Lopez 2006: 21; Øystein 2006: 12).

Table 7: The Three Risk Dimensions of Energy Security

Risk dimensions	Risk contents
Delivery security	<ul style="list-style-type: none"> • Supply interruptions • Energy volume fluctuations
Affordability	<ul style="list-style-type: none"> • Price level • Price volatility
External dependency	<ul style="list-style-type: none"> • Exposure to delivery security and price risks abroad • Economic and political concerns • Undermining investments in the domestic energy sector

An assessment of the economic and political justifications for liberalization highlights the relevance of energy security concerns in influencing their underlying arguments. It is particularly visible if we take a closer look at the economic and political justifications put forward for the economic organization of electricity and gas supply prior to liberalization. We can clearly see how justifications reflected the three energy security risk dimensions. Especially, the risk of market failure as a key argument behind the economic and political justifications for a monopolistic electricity and gas supply organization with strong state

intervention is related to all three risk dimensions (2.2.2). The relationship between market failure and energy security concerns provides the key to understanding why energy liberalization was made possible. Energy liberalization was permitted as those energy security concerns decreased reflecting, in other words, significantly lower fears of market failure. The key concepts here are the matured energy sector (2.3.1) and the increasing trust in regulation (2.3.2). In effect, both factors together provided policymakers with the expectation that a competitive market environment and private market players would be able to provide the same level of energy security as did the planned economy approach to electricity and gas supply prior to liberalization.

Unlike some economists believe, this does not mean that with energy liberalization energy security concerns disappeared. Energy security concerns remained relevant as the public policy, guiding the economic organization for electricity and gas supply, remains subject to one key benchmark, which is guaranteeing energy security. In other words, energy liberalization was permitted by a reduced level of energy security concerns. That may also work in the other direction. Energy liberalization may be rolled back as energy security concerns increase.

Obviously, energy security concerns determine the economic organization of electricity and gas supply. It calls for acknowledging the role that the energy supply system plays with regard to energy security, which seems to be often omitted in energy security definitions. In that respect, Grubb et al (2006: 4051) remind us of the important role that the economic organization of electricity and gas supply plays by emphasizing its ultimate goal, which is:

“[...] [to] provide a flow of energy to meet demand in an economy in a manner and price that does not disrupt the course of the economy. Symptoms of a non-secure system can include sharp energy price rises, reduction in quality (brown-outs), sudden supply interruptions and long-term disruptions of supply.”

This definition highlights that the economic organization of electricity and gas supply brought by energy liberalization, characterized by a competitive market environment, is only to persist in a country as long as it delivers energy security.

2.5.2 (NEW) ENERGY SECURITY CONCERNS IN COMPETITIVE MARKETS

As already mentioned research on energy shows a tendency to overlook how the economic organization of electricity and gas supply influences energy security (Grubb et al 2006). However, energy liberalization is likely to pose new energy security concerns (Kohl 2004: 193). In addition to providing for efficiency gains, a competitive energy market may also provide new energy supply challenges. Thomas (2006: 800) captures the issue very well by referring to the rise of new power supply concerns in the aftermath of electricity liberalization as follows:

“[...] competition in electricity is not a free good; costs may outweigh any benefits.”

So far, it seems that only economists have addressed the problematic effects that a competitive market environment may cause for energy security (see Coppens and Vivet 2004; Neuhoﬀ and de Vries 2004; Thomas 2006; Woo et al 2006; Banks 2007; Rothkopf 2007). However, the existing economic literature is rather stodgy not least as it often consists of dry econometrical arguments. Understanding the energy security concerns that a competitive market environment may cause for electricity supply requires two steps. First, it is necessary to boil down those arguments to the fundamental issues at stake. Second, those issues have to be systemized in a way that may become decisive in driving a political discussion on the benefits and drawbacks of energy liberalization. A useful approach is to address those economic arguments by briefly discussing them in a generic way along the three dimensions of energy security.

Before discussing the potential problematic effects of energy liberalization and competitive energy markets for energy security, it is important to remember two things. We are discussing problematic effects that may not crop up in all countries in the same way, scope and seriousness. The seriousness of the effects may also depend on the size of a country's energy market and other economic and political circumstances. In addition, it is important to acknowledge that some issues may be considered, from a political perspective, as undesired effects of liberalization, such as increasing energy prices and growing external dependency. However, from an economic perspective, the same effects may be justified either as a temporary effect (of liberalization), which market forces will sooner or later even out, for example the lack of investments in generation capacities or certain price developments. In that context, other effects of a competitive market environment, such as growing external dependency, may simply be beyond economic concern. All that indicates the problems related with any public policy applied to the economic organization of electricity and gas supply,

which is that it usually has to satisfy political preferences that go beyond the mere economic sphere.

Delivery Security

Competitive electricity markets reduce the planning horizon for market participants and, thereby, increase uncertainty for investments.¹³ The planning horizon is reduced as investments in new power facilities have to be recovered based on electricity prices achieved on the open power market. In addition, the planning horizon is further hampered as competitive markets exacerbate the negative effects of political, legal and regulatory uncertainty. An uncertain investment environment increases commercial risks and may reduce (expensive) investments in network infrastructure or power generation facilities. Under such circumstances, investments may flow into infrastructure, which shows thanks to a clear planning horizon reduced commercial risks, such as power generation requiring lower capital cost or benefiting of public support schemes (e.g. gas, renewables). In the worst case a lack of investments in power supply infrastructure may increase the risk of supply interruptions and brownouts.¹⁴ In the best case investment uncertainties are managed by adding a financial risk premium to investments to compensate for the reduced planning horizon and the commercial risks.¹⁵ Thereby, delivery security is ensured, though at the detriment of affordability.

Affordability

In competitive electricity markets price building takes place on open power markets (spot-markets or via OTC trading).¹⁶ As illustrated in the following figure, the price for electricity is provided by the clearing price reflecting the price for the last power unit required to satisfy demand.

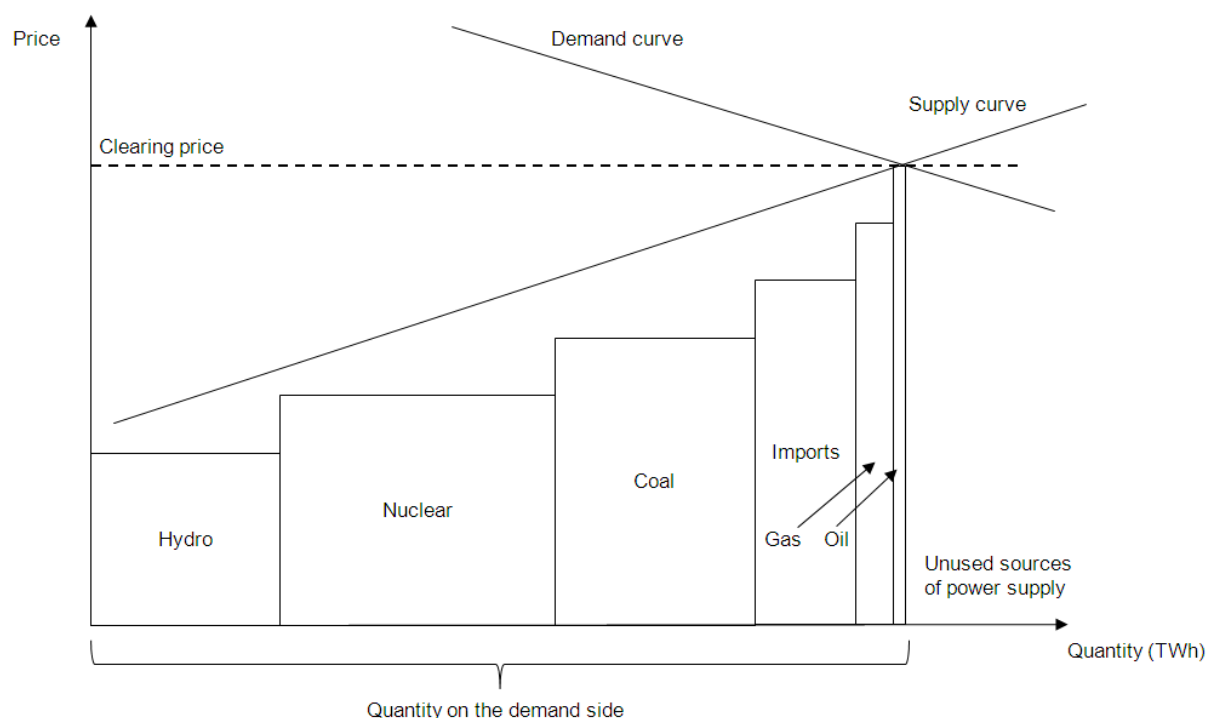
¹³ For a more comprehensive economic discussion of planning horizon on investments in competitive energy markets see Neuhoff and de Vries (2004).

¹⁴ For more on the effect of competitive markets on electricity supply see Woo et al (2006). It consists of a comprehensive literature review on energy liberalization and its practical effect. The study provides an overview of lessons learned from other countries. Thomas (2006) provides a similar study for European countries and, especially, the Nordic experience.

¹⁵ The role of risk premiums in managing investment risks has implicitly been referred to by the energy regulator of Great Britain in its Project Discovery with a report published in 2010 (BOFGEM 2010: 16). The question guiding the report is if the current regulatory framework for electricity and gas supply can be expected to deliver secure and sustainable electricity and gas supply for the next 10 to 15 years.

¹⁶ Electricity trading takes place on so-called day-ahead spot markets. It means that the price for one unit of power for a specific hour of a day is determined on an auction involving the supply and demand side a day before consumption takes place.

Figure 1: Price Building on a Fictional Electricity Spot Market



Note: The price axis reflects the marginal costs for power production related to a particular primary energy resource.

The figure illustrates how the overall power supply structure determines the prices that consumers will have to pay for electricity. A lack of investments in new power generation may negatively affect the supply structure by leading to a higher clearing price as a result of either a risk premium (to new investments in generation capacities) or the need to tap more expensive sources of electricity to serve as the least power unit to satisfy demand. However, a shift in investments activities to low capital costs projects, such as power facilities burning gas, may also negatively affect electricity prices. In that case, gas price fluctuations translate into electricity prices.

Another characteristic of competitive markets is that they require for functioning (performing in the economic sense) not only the participation of the supply but also the demand side. A lack of participation of the latter is likely to give the supply side an advantage in determining electricity prices. An improper participation of the demand side (as a lack of economic pressure) is likely to lead to a higher price level.

The danger of market abuse by the supply side is related to high power prices. An energy company with a portfolio of different energy generation facilities could retain some of them

and profit from a higher clearing price for the rest of its generation portfolio. However, such behavior requires substantial generation capacities and, of course, considerable market power.¹⁷

External Dependency and Conclusions

A competitive market environment may increase external dependency for different reasons. A lack of investments in new power supply capacities may be compensated by an increasing share of power imports. Power imports may also increase as a result of high domestic electricity prices as they may benefit from a competitive price advantage. However, power imports may also increase as an answer to the investment uncertainties in a country. In this context, power imports may, compared to direct investments in domestic electricity supply, benefit from lower commercial risks. This may undermine investment activities in a country's domestic electricity supply system and exacerbate existing delivery supply risks.

In addition to increasing power imports, the reduced planning horizon may (also for other reasons, e.g. gas, renewables) increase the exposure to fossil fuel imports—in particular, gas. An increasing need for gas (and electricity) imports results not only in an additional exposure to delivery and affordability risks abroad, but it may also pose serious economic and security concerns for a country.¹⁸

The potential effects of competitive energy markets along the three energy security risk dimensions highlights that the economic organization of electricity and gas supply can affect the energy security of a country in the medium to long term. Depending on the seriousness of the consequences, it may call for political and regulatory intervention. In the ultimate case, it may lead to rethinking the economic and political justifications originally provided for electricity liberalization. The result may be a public policy shift concerning the economic organization of electricity and gas supply, and, as such, changes to a country's energy market regulation.

¹⁷ In reality it may be very difficult to identify such criminal behavior (see GFCA 2011a and 2011b). The most famous case of market power abuse, also referred to as gaming the market, took place in California involving the notorious energy company Enron (see Woo et al 2006: 752).

¹⁸ For more information on external energy supply risks with a focus on dependency on fossil fuels see Van der Linde (2004) and Øystein (2006).

Competitive Gas Markets and Energy Security Implications

With regard to gas supply, the effects of a competitive market environment on energy security are more difficult to assess because the effects are more complex, and in most cases involve third countries. In those countries endowed with gas reserves the effects in terms of delivery security and affordability may to some extent be similar to those discussed in the case of electricity. In those countries that rely on gas imports (the majority of European countries) a competitive market will especially affect gas companies or, in other words, gas exporting countries. To understand this seemingly paradoxical situation, it is necessary to have a closer look at gas trading. In the past, gas trading was based on long-term gas supply contracts.¹⁹ Those long-term contracts were the result of the economics of gas supply (cost-intensive exploration and infrastructure) as well as that gas exporting (given the investment costs) and importing countries (given the need to satisfy domestic demand) had a high interest in stable trade relations (Øystein 2006: 15).

As a consequence, introducing a competitive market environment may especially affect trade relationships between gas-importing and exporting countries. If long-term gas contracts are prohibited or restricted to foster the establishment of a competitive domestic gas market, the consequences are similar as in the case of electricity supply. In that sense, the establishment of a competitive market environment less directly affects the importing country but reshapes the planning horizon and investment environment for gas companies and gas exporting countries. The company producing and exporting gas faces similar risks as generally encountered in the international oil business. As prices are determined on spot markets the planning horizon shrinks and investment uncertainties increase with the effect of growing commercial risks. This also has consequences for necessary infrastructure investments related to gas supply, such as exploration activities and gas pipelines.

If commercial risks are considered too high, the importing country may become less attractive for gas deliveries. In the worst case, former supply relations may dry out and new suppliers or supply alternatives (possibly more expensive) have to be found. An alternative scenario is that gas supply will be subject to an economic risk premium reflecting the decreasing planning horizon and, eventually, the increasing commercial risks.

Gas liberalization in the EU is driven by the idea of increasing gas-to-gas competition by establishing an internal competitive gas markets. In the past, national gas markets were split

¹⁹ Here we speak of so-called depletion or supply contracts. They usually depended on the gas-producing country. In the past, Norway, preferred depletion contracts while the Soviet Union (later Russia) relied more on supply contracts (see Estrada 1988: 265).

among the main gas exporting countries, such as Algeria, Russia and Norway. More competition between gas-producers was (still is) expected to benefit consumers with lower gas prices. However, as indicated, the introduction of a competitive gas market transforms gas trading into something similar to international oil trading. While the benefits and drawbacks may be debatable, one aspect distinguishes gas trading from oil. Gas relies on pipelines to reach its consumers. The effect of a competitive market may result in increasing and more volatile gas prices driven by similar factors as international oil prices. Given the huge costs related to pipelines as well as gas exploration and production, the looming investment uncertainties may in some instances seem too large for a gas company to be willing to take the commercial risks and engage in a supply relationship with a country opting for a competitive gas market.

The prospect of gas-to-gas competition has already led to increasing cooperation among gas-producing countries. In 2008, some of them founded the Gas Exporting Countries Forum (GECF). Its members control 70 percent of world gas reserves, 38 percent of the pipeline trade and 85 percent of the world liquefied natural gas (LNG) production. Under those circumstances, the expectation that gas-to-gas competition would benefit in particular LNG was most likely a wrong assumption.

With regard to the problematic effects that a competitive market environment causes for gas supply, we can conclude that they will primarily affect energy trade relations between gas importing and exporting countries. In practical terms, it is likely that competitive markets, characterized by increasing commercial risks, may on a case-by-case basis negatively affect investments in pipelines and other infrastructure necessary for gas supply.

Contrary to electricity supply, the potential negative effects of competitive energy markets for gas supply are unlikely to raise voices calling for political and regulatory intervention in gas-importing countries. Governments may even welcome a decrease in external energy dependency. It is also unlikely that the interest of external gas suppliers may become a political issue in domestic politics. In that context, gas companies and exporting countries may seek to politically lobby policymakers in importing countries for a favorable business environment. However, the prospect of losing a gas supplier in the medium to long term is not unlikely. Gas and oil producing countries are rent-seeking. This means that they are interested in maximizing the income derived from their natural resources (Øystein 2006: 157).

*"Thus, the task is not so much to see what no one yet
has seen, but to think what nobody yet has thought
about that which everybody sees."*

–Arthur Schopenhauer (1788–1860)

3 THEORETICAL FRAMEWORK

This chapter provides the theoretical framework that guides the investigation on EU influence on energy liberalization in Member States, in particular with regard to the case studies in the Baltic Sea Region later in this study (chapter 8). After a quick introduction to Europeanization research (chapter 3.1), we address the problem of capturing EU influence (chapter 3.2). Thereby, we elaborate a new and narrow concept for EU influence, which focuses on the particular quality that distinguishes EU influence from other sources of influence leading to policy change in Member States. It is followed by a discussion of the independent and dependent variables (3.3), which calls for a thorough understanding of the policy issue at stake to be able to attribute EU influence to policy change on the national level. Drawing on existent research, it is complemented by the role that modifying factors play in determining EU influence on the national level (chapter 3.4). Finally, we address the issue of measuring EU influence and suggest isolating by employing methodological approaches as an analytically more beneficial way to assess EU influence on the national level (chapter 3.5).

3.1 EUROPEANIZATION RESEARCH

Europeanization research reflects a shift in EU studies away from investigating the reasons for and mechanics of European Integration towards the feedback effects of European Integration or, as some scholars refer, to Europeanization (Vink 2003). The research area looks among other things at the role that the EU plays with regard to policy change in Member States and third countries. The driving factor behind Europeanization research was the steady expansion of EU activities beyond the internal market, since the early 1990s. In that context, the purpose of Europeanization research was and is to gain a better understanding of how the EU impacts the national level.

As mentioned previously (chapter 1.3), although Europeanization research witnessed substantial growth during the past decade, more efforts are necessary. It especially concerns theorizing Europeanization, or in other words elaborating on the causality between EU

influence and policy change on the national level (Lehmkuhl 2008). There is also need for employing explicitly and systematically methodological approaches in Europeanization research (Holzacker und Haverland 2006).

This study contributes to Europeanization research by theorizing EU influence and elaborating on the methodological issue of measuring EU influence. The results are a new approach to capture EU influence in terms of Europeanization as well as a call for isolating instead of measuring EU influence. That points to the two main challenges that one faces when investigating EU influence on policy change on the national level.

3.2 TOWARDS CAPTURING EU INFLUENCE

I believe that Europeanization should work as a notion that acts as a qualifier pointing to a particular aspect that distinguishes EU influence from other external sources of influence causing policy change in a country. By investigating the feedback of European Integration, I refer to EU influence in terms of Europeanization, by which I mean:

“EU influence in terms of Europeanization refers to the process through which the EU intentionally or unintentionally induces policy changes in a state, which can on the national level be contested in terms of political legitimacy.”

Why redefine Europeanization or EU influence as there are already many definitions? That definition permits EU influence on the national level to be better captured as it sharpens the analytical focus on a key aspect of EU influence, which is being contested in terms of political legitimacy. The latter establishes the theoretical basis for Europeanization to move beyond policy implementation studies. By directing attention to the issue of political legitimacy the way is opened to discussing an increasingly important issue as the EU expands into policy areas beyond merely reducing trade barriers and providing for common product standards. In particular, as the EU is often referred to as exerting a regulatory role, the issue of political legitimacy is an important element to acknowledge as it determines the certainty and stability of the regulatory framework that the EU may provide for different policy areas or issues.

Unlike some political scientists believe, conceptualizing the EU as a quasi-regulator does not solve the EU's political legitimacy issue that results from its democratic deficit. Though, in practice regulators may seem detached from the political sphere as they are established at arm's length from governments, paradoxically, their certainty and stability (in effect existence) is closely bound to the political legitimization that they enjoy. Thereby, as Baldwin

and Cave (2002: 76–85) remind us, the support for a particular regulatory framework, and as such a regulatory agency, is based among others on its political mandate. Additional certainty and stability factors are the existence of proper control and accountability procedures, due and fair processes, expertise, and efficiency. Thus, including the issue of political legitimacy in the definition of EU influence in terms of Europeanization paves the way to discussing an increasingly relevant issue, as European Integration moves beyond the internal market and becomes more complex. The matter at stake is the EU's ability to provide certain and stable regulatory frameworks for specific policy areas and challenging policy issues.

By providing an alternative definition to Europeanization, I also address the lack of a common understanding of what Europeanization is. Evidence for that are the various definitions that exist for Europeanization (see for example Ladrech 1994: 69; Börzel 1999: 574; Héritier 2001: 3; Risse 2001: 3; Radaelli 2003: 30; Vink 2003: 72; Schimmelfennig and Sedelmeier 2005: 7). Surprisingly, all definitions address the same subject, which is the EU causing change on the national level, or put differently change on the national level resulting from EU influence. Although they are different they share a problematic similarity. They are similar in the sense that the notion of the EU or EU influence can often be replaced by referring to another international organization or global trend, such as globalization. A consequence is that as soon as Europeanization studies take into account alternative explanations for policy change on the national level, tracing back that change to the EU becomes very difficult and blurry. The conclusion in those studies is that either EU influence has to be rejected or seems to be unclear (see Verdier and Breen 2001; Bomberg and Peterson 2000; Levi-Faur 2002, 2004, 2008; Jordana et al 2006).

I believe that EU influence (as feedback of European Integration) shares a unique and uncomfortable characteristic, which is being contested in terms of political legitimacy. The most obvious cases are where EU secondary and primary legislation supersedes national laws, such as for example EU energy market legislation. Given that the EU is expanding into other policy areas the political legitimacy issue is spreading beyond the internal market. According to some observers, today a majority (some refer to up to 80 percent) of economic and social policy decisions, formerly taken individually in a national context, have shifted to the EU level (Streinz 2003: 110).

Is EU influence really contested in terms of political legitimacy? From a legal perspective, the EU is an international organization. Although it is often referred to as a supranational organization, the EU cannot be qualified as anything close to a state or a state-like

organization (Herdegen 2010: 77). Given that the EU is not a state or state-like organization, the influence that the EU exerts in those policy areas where its legislation supersedes national legislation may, thus, raise political legitimacy concerns, or put differently, be contested in terms of political legitimacy. It is most evident in cases where EU legislation expresses and prescribes an explicit policy approach to a certain policy area or issue in a Member State.

As briefly mentioned, the political legitimacy issue has been discussed in political science under the notion of democratic deficit. Contrary to legal scholars who are concerned with diagnosing the democratic deficit, political scientists are more interested in discussing the implications resulting either from different critiques (see Follesdal and Hix 2005) or justifications (see Majone 1998; Moravcsik 2002) of the deficit. Thereby, the arguments employed often reflect a personal vision of those scholars concerning the purpose and the finality of European Integration. Logically, solutions proposed to reduce the democratic deficit and directed at increasing political legitimacy are all moving the EU towards a more state-like organization. However, there are also scholars that justify the democratic deficit by arguing that the EU acts as regulatory institution for the benefit of the public, coining the famous notion of the EU as a regulatory state (see Majone 1998). However, as previously mentioned conceptualizing the EU as a regulator, however, does not solve the issue at stake. In the end, all scholars agree that there is a democratic deficit. As a consequence contested political legitimacy seems to be a key characteristic of EU influence.²⁰

But does the political legitimacy issue apply only to the EU as an international organization? Is it not a general problem of international organizations? One can argue that political programs prescribed by the International Monetary Fund or the World Bank to states in financial distress, such as fiscal austerity measures, carry the same political legitimacy issue. However, I would argue that the political legitimacy is less controversial compared to the EU for two reasons. To take effect such measures require previous political decisions by the involved countries. Those are decisions that usually involve national governments and parliaments, which represent a country's constituency. As a consequence, the measures are clearly provided to some extent with political legitimacy by the public. Another aspect

²⁰ The Treaty of Lisbon entered into force in December 2009 and marks the most recent attempt to reduce the EU's democratic deficit, or put differently, enhance democratic legitimacy. The institutional changes indicate that the power of the European Commission and the Council of Ministers has decreased in the legislative process in favor of the European Parliament and the European Council representing the heads of states or governments. However, increased qualified majority voting in the Council of Ministers and the removal of national veto powers in different policy areas may also have reduced democratic control by the public in EU member states and implicitly offset the democratic legitimacy gains. Nevertheless, the Lisbon Treaty's explicit intention to tackle democratic legitimacy is further acknowledgment of the unique way the EU exerts influence.

concerns decision-making and implementation. The problem increases when a state becomes subject to policy measures that it did not agree with, as it may be the case with decisions in the EU Council of Ministers, where qualified voting applies to certain policy areas.

However, one could argue that the EU and its actions enjoy political legitimacy by the mere existence of the EU. In other words, without political legitimacy the EU would not exist. At first glance this seems logical. Nevertheless, I would be more careful and argue that political legitimacy is not a prerequisite for the mere existence of an international organization. However, it can be understood as an organization's *mojo* that empowers the international institution to effectively exert influence. In that regard, I share a similar understanding as Majone (1998), who argues that the political legitimacy of the EU is (besides being derived from its treaties and secondary legislation) to a huge extent based on its performance as a regulator. For example, with regard to the internal market the EU's enforcement of competition rules is politically legitimized by the resulting economic benefit that it generates for society. However, though we may argue that a competitive market is a good thing, in effect, this expresses only a subjective preference determined by a particular economic understanding. Given that it is not possible to assess the benefits of EU action in absolute terms, the political legitimacy that we assign to EU influence remains inherently contestable.

Finally, what about EU influence on third countries? Can it also be contested in terms of political legitimacy or democratic deficit? I argue that this may be the case under certain circumstances. Switzerland provides a good example. As a country associated with the EU in certain policy areas based on bilateral treaties, Switzerland adopts EU legislation, or in other words adapts its national laws to EU legislation on an ongoing and deliberate basis. In that context, the issue of democratic deficit crops up if we take a closer look at the political supporters of a Swiss accession to the EU and the opponents. The supporters of an accession highlight the democratic deficit that the current procedure of constantly adapting Swiss legislation carries as the country does not participate in EU policymaking. Those opposing an EU accession point to the democratic deficit to Swiss policymaking that would result from EU membership. Given those concerns, in the context that Switzerland adapts its law and regulations to EU legislation without being explicitly required, we may conclude that EU influence on policy change in Switzerland can also be contested in terms of political legitimacy. Of course, in absolute terms there are qualitative differences with regard to political legitimacy compared to Member States, or members of the European Economic Area, and of course Accession Candidates. However, the Swiss case provides the reason to

refer in the definition to the fact that the EU may induce, besides intentionally, also unintentionally policy changes on the national level.

3.3 INDEPENDENT AND DEPENDENT VARIABLES

Based on the definition of EU influence in terms of Europeanization, EU influence is the independent variable with regard to policy change on the national level. As the definition highlights the issue of political legitimacy, it narrows the analytical focus to some extent. It basically reduces EU influence to those measures by which the EU can prescribe a policy change. Or to put it differently, the analytical focus is directed towards instances where Member States legally have to comply with EU measures. Hence, the definition blanks out those measures by which the EU induces policy change in a voluntary way, for example by setting particular incentives, as long as the context in which it takes place does not trigger concerns of political legitimacy. Despite that the focus concerning EU influence as an independent variable will rest significantly on legally binding instruments (EU primary and secondary legislation), room is open to include other legally non-binding means or constellations of means that may have a similar effect with regard to policy change on the national level. They may seem *prima facie* unproblematic in terms of political legitimacy but in effect leading to outcomes on the national level that fit our definition.

Given the definition of EU influence in terms of Europeanization sets implicitly a focal bias on legally binding instrument, one may already anticipate a policy change on the national level, not at least as Member States have to comply, for example with an EU directive. Though this is the case, interesting aspects related to a country's compliance with EU legislation remain. It includes timing, scope and reasons for compliance. As we will see later in this study, though at first glance EU influence takes place in many countries in similar ways, in effect, EU influences takes place in all countries differently (chapter 8). The differences are only visible after closely investigating the transposition and implementation of EU legislation. However, the differences are interesting as they reflect different social, economic and political contexts that characterize the states subject to EU influence.

In that sense, the focus set by the definition of EU influence in terms of Europeanization requires us to take a closer look at a phenomenon that we may intuitively believe to be uniform. In analytical terms, the understanding of Europeanization research supported by this study draws attention to the second phase of European Integration, which is mostly neglected by European Integration studies.

The dependent variable, the policy change on the national level, is closely related to the independent variable. The challenge is to identify those aspects of policy change observed on the domestic level that can be attributed to EU influence. This is not easy and requires an in-depth understanding of the issue at stake, which may go beyond the political sphere and include rather complex economic and legal aspects. Related to the need to attribute change to EU influence and, thus, identifying the dependent variable, are two risks that Europeanization studies face and that are paradoxically interrelated: the risk of overestimating and underestimating EU influence.

It can be illustrated with energy liberalization. As we have seen (chapter 2), energy liberalization involves many dimensions, such as regulatory change, the emergence of competition, structural changes to energy supply and so on. Overestimating EU influence may be the result of attributing EU influence to structural changes in the energy industry, such as an increasing participation of new energy companies. There we confuse policy and regulatory change with expected practical consequences, which may or may not result. This would mean implicitly overestimating EU influence. Paradoxically, the resulting analytical insights based on assessing structural change in the energy industry risk underestimating EU influence on energy liberalization. Based on a lack of structural change, one may wrongly conclude that EU influence had no effect on energy liberalization, which is the subject of investigation. This highlights not only the need to thoroughly discuss and understand the issue at stake. Over- or underestimating EU influence also has serious implications as it may lead to a flawed understanding of the scope and limits of EU influence and provide policymakers with questionable information concerning the role played by the EU, not only in terms of policy change, but more importantly in sustaining a particular regulatory architecture, for example for the internal energy market.

3.4 MODIFYING FACTORS DETERMINING EU INFLUENCE

An important question in Europeanization research and for this study concerns those factors that may determine EU influence. Many scholars argued that the influence is a function of the means employed by the EU to induce change on the national level (Eising and Jabko 2001; Holzinger et al 2005; Schimmelfennig and Sedelmeier 2005; Bulmer et al 2007; Andersen and Sitter 2007). This may be true in cases where we compare different policy areas subject to EU influence. However, if we compare different countries with regard to a particular case of policy change on the national level, differences between the measures employed by the EU

shrink. As this study will show, this is not only the case between EU Member States but also between them and none-EU Member States. The latter are sometimes used to illustrate that EU influence may be more powerful on Accession Candidates given the special situation structure (e.g. need for compliance with EU legislation for the benefit of accession). Although the observation concerning the role played by the situation structure may be correct, the inference may be wrong. In the context of energy liberalization, Member States and Accession Candidates were exposed to the same EU influence, which is EU energy market legislation that had to be transposed and implemented affecting the economic organization of electricity and gas supply.

Nevertheless, the situation structure matters in so far as it indicates that contextual factors may be relevant in determining EU influence on the national level. This is widely acknowledged in Europeanization research as many studies employ neo-institutional approaches to analyze and explain EU policy implementation (Schmidt 2002; Radaelli 2003; Schimmelfennig and Sedelmeier 2005; Jordana et al 2006).

The problem with contextual factors is to reduce them to a set of relevant factors, as it is obviously impossible to take into account the entire social, economic and political context in which policy change takes place. An interesting approach is provided by Schmidt (2002). In her investigation of EU influence on economic policy change on the national level, she identifies a few determinants to which she refers as mediating factors: economic vulnerability, political institutional capacity, policy legacy, policy preferences and discourse. The effect that she assigns to the mediating factors with regard to EU influence can be boiled down to the following basic propositions:

“The more favorable the mediating factors on the national level are to the policy change induced by the EU, the more likely EU influence is to take place in a country.”

Or in other words:

“The less favorable domestic modifying factors are on the national level to the policy change induced by the EU, the less likely EU influence is to take place in a country.”

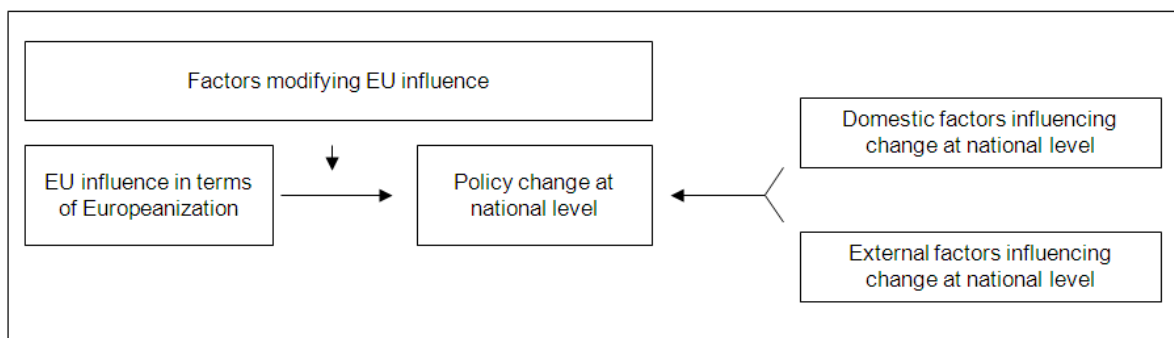
The selection of mediating factors is obviously closely related to a thorough analysis of the policy issue subject to EU influence (the dependent variable). As already mentioned, depending on the policy area and the particular issue, this may not be an easy task.

Although Schmidt’s approach is very useful, I suggest employing a different notion than mediating factors. I refer to modifying factors that explain the differences in EU influence on

policy change on the national level. This reflects not simply a particular terminological preference. The reasons is that the factors may not only determine the scope of EU influence on policy change on the national level but also determine how EU influence is politically framed in a country. In other words, it permits accounting for the fact that the same EU influence may affect Member States for different national reasons or be supported by different national justifications. On the one hand, those reasons and justifications may be related to the original intention driving EU influence. On the other hand, those reasons and justifications may also be detached from the original intention of EU influence. In the case of energy liberalization, a country may liberalize for the sake of a seemingly better economic organization of electricity and gas supply but it may also liberalize for other reasons. By conceptualizing contextual factors as modifying factors, Europeanization studies may raise interesting questions concerning not only EU influence but European Integration as such.

Having discussed all the relevant variables, we can formulate the general analytical framework, including internal and external third factors that may, in addition to the EU, contribute to policy change in a country, as outlined in the following figure.

Figure 2: Formal Analytical Framework for Europeanization



3.5 ISOLATING EU INFLUENCE AND METHODOLOGY

In the past, many scholars tried to measure the degree of EU influence on policy change on the national level by referring to it as degrees of Europeanization. As already mentioned and expressed by the definition of EU influence in terms of Europeanization, I suggest using Europeanization as a notion to qualify a particular kind of EU influence. Thus, contrary to other Europeanization studies, referring explicitly to Europeanization when discussing EU influence does not carry any additional analytical benefit for this study. Nevertheless, it is

necessary to briefly address the issue of measuring EU influence as it forms an important complementary aspect to capturing EU influence.

As mentioned, many (if not most) Europeanization studies are concerned with measuring the degree of EU influence. Radaelli (2003) provides one of the most sophisticated approaches by systemizing the outcomes of Europeanization. Based on observed policy changes on the domestic level resulting from EU influence, he distinguishes between categories, such as transformation, absorption, inertia and retrenchment (Radaelli 2003: 35). However, the analytical value of such categorizations is doubtful. Radaelli (2003: 23) himself provides an argument against it. According to him, categorizations always entail the danger of overestimating EU influence (Europeanization), as it already implies the existence of EU influence. It carries the risk of excluding alternative explanations for change on the domestic level.

I would argue that from a practical point of view the benefits of Europeanization research do not rest in the ability to distinguish between different outcomes. Identifying EU influence in terms of Europeanization, taking place on the national level, is already important as such. It provides evidence for a process that is already astonishing given the political legitimacy issue that it carries.

However, I believe that another aspect related to measuring Europeanization is more interesting and relevant. It is the challenge to disentangle EU influence from other sources of change that may be found on the domestic or international levels (Lehmkuhl 2008: 342). This forms a complementary element to capturing EU influence and can be referred to as isolating EU influence. In addition to formulating a narrow definition of EU influence in terms of Europeanization, the use of methodological approaches can also help to isolate EU influence on policy changes on the national level (Haverland 2005; 2006; Bulmer 2008: 55). This touches upon critiques on past Europeanization studies, which is that many of those studies do not provide for a clear causal relationship between EU influence and change on the national level (Haverland 2003; 2005; Jordana et al. 2006). They call for including more comparative approaches, historical, cross-country and cross-sector as well as counterfactual analysis in addition to multiple case studies.

4 BASIC ANALYTICAL FRAMEWORK

We have discussed the political economy of electricity and gas supply (chapter 2) and elaborated on how the EU exerts influence on policy change on the national level (chapter 3). It is now time to establish the basic analytical framework that will permit us to answer the research question guiding this study (chapter 1.1): How did the EU gain influence on energy liberalization in Member States and which factors determined its scope? This chapter establishes the basic analytical framework guiding this study in particular with a focus to the empirical analysis of EU influence on energy liberalization in Member States situated in the Baltic Sea Region (chapters 8 and 9).

4.1 CAPTURING EU INFLUENCE ON ENERGY LIBERALIZATION

With regard to EU influence on energy liberalization, we address EU influence in terms of Europeanization, which we defined previously as follows (chapter 3.2):

“EU influence in terms of Europeanization refers to the process, through which the EU intentionally or unintentionally induces policy changes in a state and which on the national level can be contested in terms of political legitimacy.”

From an analytical point of view the definition is useful as it excludes measures by which the EU simply suggests or recommends in a nonbinding way that a country engage in energy liberalization. In practical terms, it means that the analytical focus will rest on EU influence exerted through primary and secondary legislation, which has by its nature a prescriptive character for Member States. As energy liberalization driven by the EU is about the establishment of a competitive market environment for electricity and gas supply, EU influence has to be directed at changing national energy legislation to achieve that goal. EU influence, as the explanatory concept (independent variable) concerning energy liberalization on the national level is operationalized in terms of EU measures aiming at (chapter 2.4):

- Changing the rules of the game for electricity and gas supply in a country;
- Changing the behavior of market participants in electricity and gas supply in a country.

Changing the rules of the game for electricity and gas supply and the behavior of market participants amount to the regulatory changes outlined in the following table.

Figure 3: EU Measures Directed at Energy Liberalization

Regulating for competition:	Regulatory/Legislative changes aimed at:
Changing the rules of the game	Unbundling of vertically integrated companies Third party access (TPA) to networks Market opening for (eligible) consumers
Changing and guiding the behavior of market participants	Establishing an independent national energy regulator Making electricity and gas supply subject to competition rules and supervision by a competition authority

Changing the Rules of the Game

The EU can, based on primary and secondary legislation, require a Member State to alter its energy market regulation for electricity and gas supply. However, the EU acts as a centralized rule-making power with decentralized enforcement in Member States (Salerno 2008: 1). A Member State may show reluctance to comply with EU legislation, which eventually may hamper the EU's influence on energy liberalization. EU influence may also be hampered in case its legislation does not provide sufficient guidance for the Member State to change its regulation and meet the EU's liberalization goals or, in other words, the spirit of EU energy market legislation.

Changing and Guiding the Behavior of Market Participants

In practice, the EU can with secondary legislation influence the behavior of market participants in Member States by two means. It can legally require Member States to establish an independent energy regulator with the relevant competences. The EU can also act as a regulatory agency by threatening to apply or applying EU competition rules that concern in that case basically antitrust (Art. 85 ECT, Art. 101 TFEU) and abuse of market position (Art. 86 ECT, Art. 102 TFEU).²¹ EU influence on liberalization may be hampered as cases of direct

²¹ It is important to note that public undertakings and undertakings to which Member States grant special or exclusive rights are also covered by EU competition rules. Those companies are subject to EU competition rules to the extent that they do not obstruct the fulfillment of the special task entrusted to them. However, the latter also has its limit as it should not affect the development of trade contrary to the interests of the EU (Art. 90 ECT, Art. 106 TFEU).

application of competition rules have to qualify as being important and community-relevant (Herdegen 2010: 378). However, the application of competition rules will not be in the focus of this study. Given its case-by-case application, it is not expected to have been a tool by which the EU in a generic sense aimed at contributing to energy liberalization in Member States.

The Dependent Variable: Energy Liberalization on the National Level (Policy Change)

Closely related to EU influence is the dependent variable—the subject or outcome of EU influence. In this study it is energy liberalization in a country. We have established EU influence as pushing Member States towards regulating for competition concerning electricity and gas supply. Thus, the dependent variable consists of the specific changes in national energy market regulation and legislation, expressing changes in the rules of the game aiming at establishing a competitive market environment for electricity and gas supply.

Finally, we know that for example unbundling may take different forms (chapter 2.4). The same is true for market opening or TPA. It means that energy liberalization may be different among countries as they may opt for different measures to establish a competitive market environment. Taking this into account is important to understand if the EU was at the source of energy liberalization or if it merely contributed to a process that was already ongoing in a country. Acknowledging that is necessary to gain a thorough understanding of the scope of EU influence on energy liberalization in a country.

4.2 MODIFYING FACTORS DETERMINING EU INFLUENCE

Which factors determined EU influence on energy liberalization? This calls for substantiating the basic theoretical proposition established previously (chapter 3.4) with the insights gained with regard to energy liberalization from discussing the political economy of electricity and gas supply (chapter 2).

In political terms, energy liberalization meant a change in the public policy approach applied to electricity and gas supply. It reflects a shift from a utility to a commodity approach concerning the supply of those energies (chapter 2.3.3). This was made possible only as the economic and political justifications for the economic organization of electricity and gas supply prior to energy liberalization changed and, thus, permitted a shift in public policy. We have identified a few arguments that seem to have influenced the economic and political

justifications for energy liberalization. Those are with regard to economic justifications (chapter 2.3.1): the reduced fear of market failure due to the maturity of the energy sector and the expectations of efficiency gains. Although the political justifications for energy liberalization can be understood as reflecting the economic justifications, they are also driven by two additional factors (chapter 2.3.2): an increasing trust in regulation to prevent market failure as well as a changed view on the legitimate role of the state in economic activities. This leads us to the following theoretical propositions:

“If a country provides the economic and political justifications required for energy liberalization, the EU is likely to exert influence on energy liberalization in that country.”

Or put differently:

“If a country does not provide the economic and political justifications required for energy liberalization, the EU is unlikely to exert influence on energy liberalization in that country.”

Although economic and political justifications matter, at the end, the incentive to engage in the huge and complex process of economically reorganizing electricity and gas supply are the expected economic efficiency gains that a competitive market promises. This may depend upon the size of the energy market. For obvious reasons, for competition to work a certain market size is necessary.

The particular important role that a reduced risk of market failure plays directs our attention to the ultimate point of reference that guided public policy approaches applied to electricity and gas supply in the past. It is energy security. That the public policy approach to the economic organization of energy supply in a country is serving the one and final goal, which is guaranteeing electricity and gas supply, can be considered as still valid today (chapter 2.5).

As economic and political justifications for energy liberalization are influenced by a reduced fear of market failure, it reflects reduced energy security concerns. As a consequence thereof, we can expect that a country's energy security situation may play a decisive role in modifying the EU's influence on energy liberalization. Accordingly, we can formulate two additional theoretical propositions:

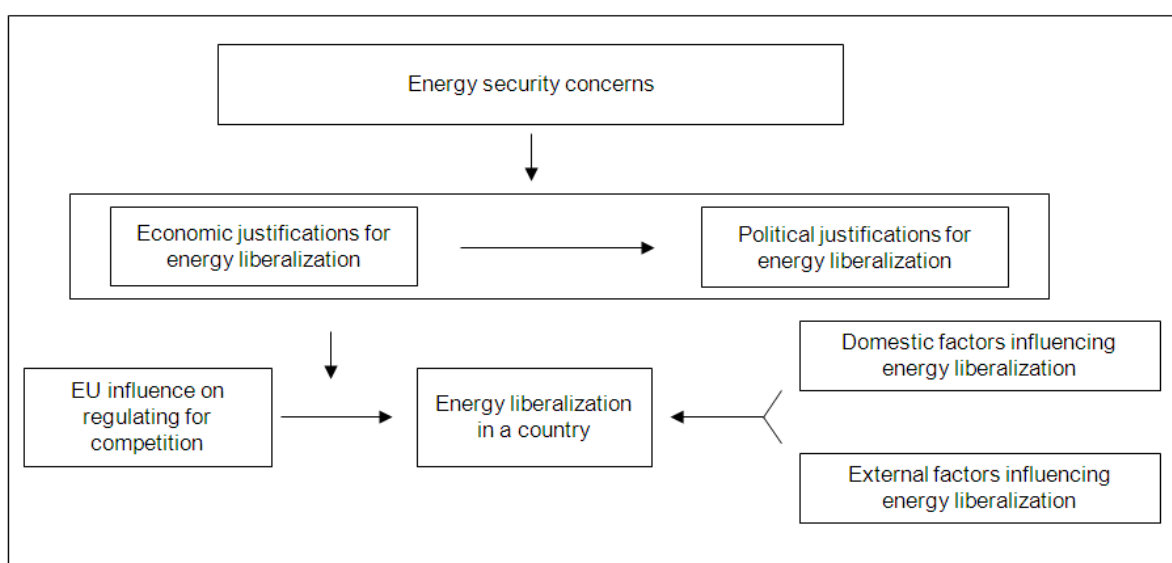
“The less a country is concerned about its energy security situation, the more likely the EU is to exert influence on energy liberalization in that country.”

Or put differently:

“The more a country is concerned about its energy security situation, the less likely the EU is to exert influence on energy liberalization in that country.”

The analytical framework for EU influence on energy liberalization guiding the empirical analysis of this study can be formalized as outlined in the following figure.

Figure 4: Basic Analytical Framework for EU Influence on Energy Liberalization



To sum up, in addition to the existence or absence of economic and political justifications for energy liberalization, we can expect that a country’s energy security situation on the eve of liberalization may work as an antecedent variable to economic and political justifications and, thus, determine a country’s general willingness to carry out energy liberalization. Those variables can be expected to affect the transposition and implementation of EU secondary legislation, directed at changing the rules of the game for electricity and gas supply and as such, the establishment of a competitive market environment. In other words, they may work as modifying factors for EU influence on energy liberalization in a country.

The analytical framework is not designed for explicit hypothesis testing but rather directs the analytical focus to factors that may determine EU influence on energy liberalization in Member States. This is not surprising as with regard to the reality and complexity of domestic political processes it is almost impossible to precisely determine the exact influence of domestic factors on EU influence on energy liberalization. Thus, the analytical framework is best understood as an analytical tool to assess to which extent potential modifying factors may have determined EU influence on energy liberalization.

4.3 METHODOLOGY AND DATA

Reflecting the research question guiding this study, the methodological approaches employed in this study are twofold. On the one hand, methodology is employed to investigate how the EU managed to expand its influence in energy market regulation. On the other hand, methodology is necessary to investigate the EU's influence on energy liberalization in the Member States in the Baltic Sea Region.

Investigating the Expansion of the EU into Energy Market Regulation

Answering how the EU gained influence over energy liberalization is done in a descriptive way by historically tracing back the EU's expansion into electricity and gas market regulation (chapter 5). It involves investigating the origins of the EU's role in the energy sector as well as identifying those factors permitting the EU to expand into electricity and gas market regulation. An important element consists of discussing the legal and political mandate that sustained the EU's expansion into electricity and gas market regulation. It is followed by discussing the development of EU energy market regulation (chapter 6). This provides us with the necessary knowledge of the legal means by which the EU exerted influence on energy liberalization in Member States. In an additional chapter, we address how the EU exported energy liberalization in the past and still does today (chapter 7). This is needed as some of the countries in the case studies were not members of the EU until 2004. However, it also provides us with a comprehensive understanding of EU energy market regulation, and permits us to understand the scope and limits of EU influence on energy liberalization abroad.

Investigating EU Influence on Energy Liberalization in Member States

As already mentioned earlier, to answer how the EU exerted influence on energy liberalization in Member States this study employs a qualitative case study approach with a geographical focus on the Baltic Sea Region. The region provides an excellent starting point to analyze EU influence on energy liberalization in Member States. It is made up of a variety of Member States, such as old, rather young and very young Member States. In addition they differ in social, economic and historical terms. Particularly interesting is that they also differ in liberalization history. All that makes them an excellent mix of cases to investigate EU influence on energy liberalization. Those national differences are likely to be reflected in the role that modifying factors play in determining EU influence. This enhances the general

conclusions derived from the analytical framework in terms of validity and reliability. Another aspect characterizes the Baltic Sea Region. It contains one of the most advanced regional electricity markets in the EU: the Nordic power market (Nord Pool). Besides the EU, energy market integration may work as an additional factor for energy liberalization in a country. In that context, the geographical focus on the Baltic Sea Region facilitates controlling the influence that energy market integration may exert on energy liberalization in Member States.

The case studies (chapter 8) cover seven countries: Germany, Sweden, Finland, Poland, Lithuania as well as Latvia and Estonia. Germany is interesting as it is in one of the largest Member States. It has a well-developed energy supply system and some of the largest energy companies in Europe. Sweden and Finland are interesting cases as they started liberalization even before the EU adopted relevant energy market legislation. They indicate that EU influence may not explain energy liberalization in all countries. Though new Member States are often treated as a homogeneous group, investigating Poland, Lithuania, Latvia and Estonia individually is intriguing as they are very different countries. As they have been Member States of the EU only since 2004, they may cast light on differences in EU's influence on energy liberalization between Accession Candidates (de facto third countries) and Member States.

A case study approach has the benefit to look at evidence if a certain independent variable influences a dependent variable via a hypothesized causal way (Mitchell and Bauer 1998: 7). For this study a case can be understood as an instance of EU influence on energy liberalization involving a Member State. It is likely that besides EU influence other unexpected third factors on the domestic or international levels contributed to energy liberalization in a country. By conceptualizing EU influence in terms of Europeanization, we have already distinguished EU influence from other sources of change. However, in order to check for alternative explanations to energy liberalization a systematic investigation is necessary that helps isolate EU influence on energy liberalization in a country. For this study we opted for investigating EU influence in the case studies based on a methodological four-step approach and distinguishing between electricity and gas liberalization:

1. Step: Changing the Rules of the Game in Electricity Supply

This step is concerned with tracing the historical roots of electricity liberalization in a country. In the focus are changes to national energy legislation in terms of moving towards regulating for competition, with a focus on changing the rules of the game for

electricity supply, as well as the influence of the EU with regard to that. Although the time span may cover in some countries the first efforts for liberalization to the most recent ones, the analytical focus rests on a country's first decisive steps towards electricity liberalization. This step can be understood as a historical analysis of EU influence on energy liberalization in a country.

2. Step: Role of Energy Security, Economic and Political Justifications

This step assesses the extent to which electricity liberalization in a country was influenced by energy security concerns as well as the economic and political justifications for energy liberalization. Those factors reflect the theoretical propositions guiding our expectations concerning factors that may have modified EU influence on energy liberalization in a country. Additional internal and external factors decisive for energy liberalization are also discussed.

3. Step: The Role of the EU in Electricity Liberalization

This step discusses the EU's contribution to electricity liberalization in a country as well as to which extent EU influence has been modified by energy security concerns as well as economic and political justifications for liberalization and other factors. This chapter also applies contra-factual analysis to further clarify the role of the EU in energy liberalization.

4. Step: Gas Liberalization and the Role of the EU

This step addresses the EU's influence on gas liberalization. It is shorter and less comprehensive than the previous chapters on electricity liberalization. Gas liberalization has not been a particularly topical issue. This may partially be explained by the fact that it did not involve the same complex energy security concerns as electricity liberalization. Another reason may be that most countries rely on gas imports. Thus, gas liberalization may have been less likely to affect particular domestic interests and raise significant political opposition or controversy (see chapter 2.5.2). However, that may change in the coming years, as countries are becoming increasingly reliant on renewables as sources of electricity and gas may become more relevant for load balancing purposes. Methodologically this chapter employs the same approaches to EU influence on gas liberalization as applied to electricity liberalization.

The case studies provide the basis to draw general conclusions concerning EU influence on energy liberalization (chapter 9). For that, we perform a systematic analysis of the insights gained in the case studies. Drawing explicitly on the theoretical (chapter 3) and basic analytical framework (chapter 4), we first discuss the EU's influence on energy liberalization (chapter 9.1), which is followed by a discussion of the role of modifying factors in determining EU influence (chapter 9.2). Finally, we address important additional factors identified in the case studies that were important in facilitating EU influence on energy liberalization (chapter 9.3). The aim is to infer, based on the insights of the case studies and guided by theory, general conclusions concerning the EU's influence on energy liberalization and, eventually, the scope and limits to EU electricity and gas market regulation. This is a necessary step to answer, in particular, the second part of the research question guiding this study (chapter 1.1) concerning the factors determining EU influence on liberalization and it provides to some extent the basis to discuss the future development of EU energy market regulation.

Data for this study: Documents, Interviews, Statistics and Secondary Literature

The empirical data employed in this study spans mainly from energy statistics, official EU and national documents, EU and national energy legislation, international treaties, to secondary literature. In terms of documents, a large amount proceeded for the case studies were official energy market reports published by national regulatory authorities. In terms of statistical data, to provide for cross-country comparability, the main sources were energy policy reports from the International Energy Agency (IEA). Where IEA data was not available, official statistical data was employed and reworked in a way to ensure comparability. Finally, given the lack of secondary literature on energy liberalization in the Baltic States, not at least as the process gained impetus only in recent years, the knowledge gap was closed with open interviews with key government and regulatory officials concerning the role of the EU on energy liberalization in those countries.

“Most of them [obstacles to the internal energy market] are the end-product of domestic rules and regulations originating in an often distant past predating the European idea: this applies for example to all the potential obstacles arising from purely domestic monopolies.”

–European Commission (1988)²²

5 EU EXPANSION INTO ENERGY MARKET REGULATION

This chapter investigates how the EU managed to expand its influence into electricity and gas market regulation, leading to its influence on energy liberalization in Member States. We take a historical approach, which is important to highlight the qualitative shift in EU energy market regulation that occurred by the end of the 1980s. Thus, before addressing electricity and gas market regulation, we take a closer look at the roots of EU energy market regulation (chapter 5.1) which lay in the European Coal and Steel Community (ECSC) and the European Atomic Energy Community (EAEC). As mentioned, with competitive markets for electricity and gas the EU prescribed Member States a particular public policy approach (see 2.3.3). This is astonishing given that energy policy was generally considered to be a key national policy area. To understand how the EU managed to expand its influence in such a substantial way, we have to understand how the completion of the internal market paved the way for that process (chapter 5.2). It resulted in 1996 in the first EU energy market legislation directed at changing the rules of the game for electricity and gas supply in Member States, which constitutes the origins of today’s EU energy market regulation and its influence on energy liberalization. The legal ambiguity characterizing the EU’s expansion into electricity and gas market regulation calls for a closer look at its political and legal basis (chapter 5.3), which concludes this chapter.

5.1 KEY EU ENERGY MARKET REGULATION UNTIL 1996

The EU’s historical roots are often referred to be in energy policy. Understanding how the EU gained influence in energy liberalization requires us to look back and address the EU’s role in the Coal and Steel Community (ECSC) and the European Atomic Energy Community

²² (COM (88)238: 13).

(EAEC). It is necessary as it influenced the legal debate concerning EU competences in the energy sector, which dominated the first half of the 1990s. It is also necessary in order to grasp the different quality that EU regulatory involvement gained and that resulted in energy liberalization in Member States compared to its influence on the energy sector in the past.

5.1.1 EUROPEAN COAL AND STEEL COMMUNITY (ECSC)

Not only the roots of the EU, but also its involvement in energy market regulation, can be traced back to the treaty establishing the European Coal and Steel Community (ECSC) signed in 1951.²³ The ECSC is commonly characterized as a security framework to some extent obliging former enemies, such as France and Germany, to manage and oversee together, with coal and steel, resources necessary to wage war. However, though implicitly true, this focus underscores that the ECSC, with regard to coal, was originally conceived as an instrument to manage energy security risks. For European countries energy shortages were the main energy policy concern until the end of the 1950s. At that time, most countries covered up to 90 percent of their energy consumption with coal (Cameron 2007: 44). Unsurprisingly, guaranteeing coal supply was a key political concern in all European countries. It involved all three energy security risk dimensions (chapter 2.5.1), such as delivery security, affordability and external dependency. Coal reserves were unevenly distributed among European states and it was feared that the few large energy companies in the Western European coal industry may abuse their market position and sought profits at the detriment not only of consumers but entire national economies. In that context, six nations decided to establish an international legal framework, the ECSC, to cooperate on coal (and steel) supply (Dahl 2004: 253).²⁴ The ECSC transferred the supervision of coal and steel supply from national authorities to a supranational authority, referred to as the High Authority, a predecessor of what was to become years later the European Commission.²⁵ However, contrary to what is commonly

²³ The treaty establishing the ECSC expired in 2002. All the ECSC activities and resources were transferred to the European Community (EC). Hence, coal became subject to the provision of the EC Treaty including those related to competition. However, it is important to notice that the latter is still subject to a specific regime with regard to state aid (see Cameron 2007: 231–241).

²⁴ The founding members of the ECSC were France and West Germany, Italy as well as Belgium, Luxembourg and the Netherlands.

²⁵ Interestingly, the ECSC did not constitute a customs union according to the General Agreement on Tariffs and Trade (Art. 24 Sec. 8 GATT). This caused concerns among ECSC countries that were also contracting parties to the GATT, signed in 1947. This multilateral trade agreement for goods did only allow for full participation. It meant that according to Art. 2 (Most-Favored-Nation Treatment) and 3 (National Treatment on Internal Taxation and Regulation) ECSC countries as GATT members would have had to provide the same beneficial trade conditions that they apply among themselves for coal and steel to other GATT countries. However, the ECSC countries managed to circumvent this duty by obtaining a waiver (Art. 25 Sec. 5 GATT) issued by the GATT

portrayed, the ECSC was not about establishing a free market for coal and steel. The resulting system was a system of regulated competition (Cameron 2007: 44). The role of the ECSC decreased as coal started to lose its role as the primary energy resource to oil and later nuclear energy. The latter resulted in a new, but less successful, attempt among the members of the ECSC to commonly manage the supply of this promising new source of energy.²⁶

5.1.2 *EUROPEAN ATOMIC ENERGY COMMUNITY (EAEC)*

Another example of cooperation among the future EU Member States is the European Atomic Energy Community (EAEC), established in 1957.²⁷ Some trace its origins back to the Suez Crisis of 1956, highlighting the energy security dimension of that community (Cameron 2007: 45). While this is partially true, the foundation of the EAEC was inspired by a similar event taking place across the Atlantic, in the United States. In 1954 the United States adopted the Atomic Energy Act, which was to lay the basis to publicly support the establishment of a domestic nuclear power industry in the United States (Duffy 2004: 398). Similarly to the Atomic Energy Act, the treaty establishing the EAEC aimed at supporting research and dissemination of knowledge concerning the peaceful use of nuclear technology among its Member States. Practical results were the creation of a European nuclear supply agency ensuring the provision with fissile material for the members of the EAEC. However, the EAEC differed very much from the ECSC. Contrary to the latter, it was unsuccessful with regard to the establishment of a supranational authority overseeing the national nuclear industries and the markets in fissile products (Cameron 2007: 45). For national security reasons, Member States were unwilling to engage in closer economic cooperation.

5.1.3 *EU ENERGY MARKET REGULATION IN THE PAST*

The ECSC and EAEC provide evidence that the EU was already involved to a limited extent in energy market regulation prior to the 1990s, when the EU ventured into electricity and gas

contracting parties (Streinz 2003: 9). This illustrates that energy is an ambiguous subject when it comes to the application of GATT rules (see chapter 7.2.2).

²⁶ The founding of the International Energy Agency (IEA), an agency of the Organization for Economic Co-operation and Development (OECD), is an answer to energy security concerns related to the increasing dependency on oil and oil crises in the 1970s and 1980s. However, contrary to the ECSC and the EAEC, the competences of the IEA are considerably smaller and do not significantly go beyond providing a crisis framework in case of physical oil supply disruption and policy advisory. With regard to its policy recommendations, it is important to acknowledge that the IEA's primary focus rests on reducing member states dependency on oil.

²⁷ Contrary to the ECSC, the Treaty establishing the EAEC is of an undefined duration.

market regulation driven by the internal energy market. Are there differences between the EU's earlier involvement, and what came later, driven by the establishment of an internal energy market and leading to energy liberalization?

Those communities can to some extent be characterized as contributing to energy market integration (Cameron 2007: 44). However, one has to be careful and acknowledge important differences with what we understand today in terms of energy market integration, especially with regard to the extent to which the EU promoted common rules of the game. While the ECSC shows similarities to a common energy market with regard to coal, its aim was not so much to create a competitive coal and steel market, but rather to provide a solution to particular supply concerns related to two scarce and geographically unevenly distributed natural resources. Contrary to EU electricity and gas market regulation, the ECSC rules did not aim at establishing a competitive market environment but aimed at addressing particular risks of market failure (chapter 2.2) due to the oligopolistic market structure and the potential abuse of dominant positions by large coal-mining and steel companies. The same diagnosis can be made with regard to the EAEC. Politically, it may have been intended to work as an instrument for energy market integration. However, its setup and limited competences indicate that it was far from it. In particular, founding countries' disagreement on a common nuclear policy limited the role that the EAEC could play in terms of energy market integration and, thus, in harmonizing the rules of the game (Cameron 2007: 45).

In retrospect, we can conclude that the EU's initial involvement in energy market regulation in the past was driven by energy security concerns or interests. In the case of the ECSC it aimed at depoliticizing energy resources and managing specific economic risks. Its ultimate aim was to enhance delivery security, ensure affordability and manage external dependency. With the EAEC, the aim was to support the development of the nuclear industry and as such a new source of energy. Finally, in both cases the competences and influence exercised by the ECSC and the EAEC were based on a clear political mandate and legal basis. As we will see later, this is an important qualitative difference between the EU's involvement of that time and what came later with regard to electricity and gas market regulation. Another one concerns public policy. Neither the ECSC nor the EAEC prescribed a particular public policy approach to Member States regarding their energy sector. Contrary to the EU's electricity and gas market regulation, they did not trigger a fundamental economic reorganization of energy supply in the form of energy liberalization, observed a few decades later.

5.2 COMPLETING THE INTERNAL (ENERGY) MARKET

For almost 30 years, after establishing the ECSC and EAEC, it was calm concerning more community involvement in energy market regulation. This changed in 1986 with the adoption of the Single European Act (SEA). The SEA revitalized not only the process of European Integration, but also contributed, unintentionally, to the regulatory role that the EU was to play 10 years later for electricity and gas markets in Member States, in particular, with regard to the economic organization of the supply of those energies. In order to understand the SEA's effect for EU electricity and gas market regulation we have to take a closer look at its contribution to the internal market.

The SEA's most important effect was that it set a deadline for completing the internal market. It did so by adding Art. 8a (Art. 7a in the EC Treaty) to the Treaty on the European Economic Community (EEC), stipulating:

“The Community shall adopt measures with the aim of progressively establishing the internal market over a period expiring 31 December 1992[...].”

At first glance, the article gives the impression of a firm deadline calling upon Member States and, especially, the Commission, to adopt and carry out the necessary measures to complete the internal market. However, that perception is wrong. With the SEA Member States did not express a legal commitment but only their political will to establish an internal market. The SEA included in its final act a Declaration by the Member States that clarifies the content and meaning of Art. 8a:²⁸ In that declaration the Member States expressed political support for the Commission's White Paper on Completing the Internal Market (COM (1985)310), published in 1985. However, in the declaration they also indicated that they did not intend to legally subject themselves to the measures outlined in the White Paper to complete the internal market. The Declaration was supposed to set limits to the Commission's competences to push forward with the completion of the internal market. The question that arises is if electricity and gas were already understood to be subject to the internal market. In that regard, the White Paper published by the Commission did not explicitly refer to the energy sector in the course of completing the internal market. However, as the following table shows, that changed with the documents adopted in the years after the SEA.

²⁸ See SEA, Final Act, Declaration 3: *“The Conference wishes by means of the provisions in Article 8a. to express its firm political will to take before 1 January 1993 the decision to complete the internal market defined in those provisions, and more particularly the decisions necessary to implement the Commission's program described in the White Paper on the Internal Market. Setting the date of 31 December 1992 does not create an automatic legal effect.”*

Table 8: Key Documents Related to the Internal Energy Market in the 1980s

Year	Document	Purpose	Effect
1985	White Paper on Completing the Internal Market (COM (1985)310).	Sets out necessary tasks to complete the internal market.	Formed the substantial basis for the SEA and set out the deadline for the completion of the internal market by 31 December 1992.
1988	Review of Member States' Energy Policies (COM (88)174).	Addresses the energy policies of the Member States in a Community perspective.	Prepared the basis to align Member State energy policies with regard to Community goals.
1988	The Internal Energy Market (COM (88)238).	Assess the European energy sector in terms of challenges to competition.	Commission working documents outlining measures to create an internal energy market.

Only two years after the adoption of the SEA, the Commission published in 1988 its Review of Member States' Energy Policies (COM (88)174), which investigated the energy policies of Member States in a Community context. This publication took an energy security approach and addressed the ability of Member States to meet energy demand forecasts for the Community. Less openly, the document already indicated that the Commission was eager to tackle obstacles on the way to an internal energy market. In a more explicit way this took place in a Commission internal working document published a few months later called the Internal Energy Market (COM (88)238).

The document on the internal energy market is particularly important as it can be understood as a guide to the European Community's (EC) and later the EU's involvement in electricity and gas market regulation. Empirically, it provides evidence for the Commission's intention to expand the completion of the internal market to the network-bound energy sector. Thereby, the EU moved into an area where competition was literally absent at that time given that most countries employed a public utility policy approach to electricity and gas supply (chapter 2.3.3).

As a consequence, the Commission's ambition to establish an internal energy market was bound to collide with the political realities in the Member States in the late 1980s. Great Britain was the only country that was already in the process of moving towards a more competitive market environment for electricity and gas supply. The remaining Member States still relied on a planned economy approach.

By establishing an internal energy market, the Commission's vision for economically organizing electricity and gas supply was the opposite of the status quo in the Member States. Maybe for that reason the Commission very cautiously referred in the document only to "*a more integrated European energy market*" (COM(88)238: 5). However, a much more practical reason was that, unlike other goods and services, intra-community energy trade amounted to less than 5 percent of total Community consumption in the late 1980s (COM (88)238: 6). Obviously, calling upon Member States to fundamentally change the economic organization of electricity and gas supply for the benefit of an internal energy market was a difficult case to make.

5.2.1 COMMISSION JUSTIFICATION FOR A COMPETITIVE MARKET ENVIRONMENT

The Commission's support for the creation of an internal energy market clearly reflected the economic and political justifications for energy liberalization (chapter 2.3). Thus, the ambition to establish an internal energy market was not limited to merely reducing trade barriers between Member States but fundamentally changing the economic organization of electricity and gas supply in the Community, by shifting to a competitive market environment for both sources of energy.

Economic Justifications for the Internal Energy Market and Energy Liberalization

The Commission identified the public policy approach (public property, public utility) applied in Member States to electricity and gas supply as key obstacles to the establishment of an internal energy market. It criticized them as being anachronistic if not irrational as the following section of the Commission's internal energy market document illustrates (COM (88)238: 13):

"Most of them [obstacles to an internal energy market] are the end-product of domestic rules and regulations originating in an often distant past predating the European idea: this applies for example to all the potential obstacles arising from purely domestic monopolies. Others, which are more obscure but not less effective in impeding intra-Community trade, have to do with technical specification. Some of the obstacles are highly political: for example the aid given to national energy producers, in particular the coal industry, which can obviously have an impact on electricity trading. Last but not least, some of the obstacles arise from quasi-psychological

concerns generated by markets which have traditionally been extremely partitioned: an example for this is the behavior of many national electricity companies which strive to be self-sufficient on a national basis.”

Basically, the Commission believed that the economic justifications for the public policy approaches applied in Member States to electricity and gas supply were outdated (chapter 2.2.2). That clearly concerned the risk of market failure and other economic assumptions that justified an economic supply organization absent of competition. With regard to energy security concerns (chapter 2.5.1) the Commission applied a Community approach arguing that a European energy supply approach reduces the risks related to delivery security and external dependency. Finally, with regard to the risk dimension affordability, the Commission expected that an internal energy market, and especially a competitive market environment, would provide for significant economic efficiency gains. In the words of the Commission it meant (COM (88)238: 6):

“[...] a reduction in [electricity and gas] costs as a result of greater competition and a reduction in certain unit costs as a result of the effect of scale and the optimization of investment or management.”

Political Justifications for the Internal Energy Market and Energy Liberalization

The Commission’s competitive market approach to the network-bound energy sector reflects the common political justifications for liberalization (chapter 2.3.2), such as an increasing trust in regulation to prevent market failure, as well as a change in the perception of the role of the state in economic activities.

However, the Commission as the main driver behind the establishment of an internal energy market and the shift towards competitive electricity and gas markets could not simply draft legislation that would force Member States to change their public policy approach. The Commissions seemed to be clearly aware of the massive change in market regulation that it was calling for, by establishing an internal energy market, and avoided speaking of energy liberalization in its document (though implicitly meaning it). This was solved later by referring to harmonizing measures with regard to the EU’s electricity and gas market regulation. However, before this was the case the Commission faced another much more basic

problem. Did the Economic Community, and later the EU (from 1992 on), have legal competences for intervening in the electricity and gas sector of Member States?

5.2.2 *AMBIGUOUS LEGAL FOUNDATION FOR COMMUNITY ACTION*

The question of whether electricity and gas were covered by primary legislation, in other words the treaties, was important as it determined if the energy sector fell under the competences of the Community. If subject to primary legislation, electricity and gas supply would become subject to measures for establishing and securing the internal market stipulated in Art. 3 of the EEC/EC treaty:

- *“the elimination of customs duties and of quantitative restrictions in regard to the importation and exportation of goods, as well as of all other measures with equivalent effect between Member States.” (Art. 3a)*
- *“the establishment of a common customs tariff and a common commercial policy towards third countries.” (Art. 3b)*
- *“the abolition of the obstacles to the free movement of persons, services and capital between Member States.” (Art. 3c)*
- *“the establishment of a system ensuring that competition shall not be distorted in the Common Market.” (Art. 3f)*

The last point indicates that if primary law applied to the energy sector, it would have been subject to the Community’s competition rules stipulated in Articles 85 to 90 of the EEC/EC treaty. This would have had far-reaching effects on the economic organization of electricity and gas supply in Member States. It is important to acknowledge that the application of Art. 3 along with the competition rules would have triggered substantial consequences.

Astonishingly, if the EU had had legal competences concerning the economic organization of the energy markets of Member States, the existent and widely employed planned economy approach to electricity and gas supply in Member States would have already conflicted for many years with Community legislation. In light of that, the debate concerning Community competences was characterized by squaring the circle. This can be illustrated by the arguments of Claus-Dieter Ehlermann, Head of the Directorate General for Competition from 1990 to 1995, advanced in support of Community competences. Searching for an explanation of why competences have not been touched upon or applied in the past, his argument centered around explaining the absence of explicit legal provisions in primary legislation concerning

energy and the new quality of European Integration by moving from a single to an internal market.

Explaining the Absence of Legal Provisions in Primary Legislation Concerning Energy

According to Ehlermann (1994: 343), if the signatories of the EEC treaty, later the EC treaty, had wanted to treat energy differently than other goods, such as agriculture and fisheries, they would have explicitly assigned energy a special status. As a consequence, energy would have been exempted from the application of certain or all legal provisions in the treaties (Cameron 2007: 42). As this was not the case, Ehlermann (1994: 343) concluded that energy was supposed to be treated like any other economic sector with regard to the internal market (Ehlermann 1994: 346). Put simply, if the authors of the treaties had wanted to treat the energy sector separately they would have done so in the past.

However, with this kind of argument Ehlermann (1994) and others overlooked important empirical facts. The ECSC (chapter 5.1.1) and the EAEC (chapter 5.1.2) provide evidence for the opposite. In effect, by establishing separate and particular regimes for coal and nuclear the authors of the treaties treated them differently right from the beginning on. This becomes even more visible as at the time those treaties were signed, 90 percent of the energy consumed in the signatory states was covered by the legal provisions of the ECSC. In addition, the EAEC provides evidence that signatory states in effect already treated energy differently as they expressed their opposition to cede more responsibility to the Community with regard to nuclear energy.

Another popular argument is that the authors of the EEC treaty may have simply forgotten about energy when drafting the treaty. That seems to be very unlikely. What seems possible is that they decided to follow the successful approach already applied in the negotiations for the General Agreement on Tariffs and Trade (GATT), a few years earlier. In order to avoid a potential stalemate in multilateral negotiations and to facilitate the achievement of an agreement seen as generally beneficial to everybody, the negotiation parties may have simply left aside the issue of energy (see chapter 7.2.2). Similarly to GATT, the important role of energy for the wellbeing of countries and related national energy security concerns may have led to the conclusion that energy was politically too problematic to be dealt with in multilateral negotiations directed at facilitating trade in goods and services in a general way. It may also have been the case that at least with regard to electricity and gas supply, due to the

planned economic approach those energies were simply not seen as relevant goods or services in the context of creating an internal market.

To sum up, the argument that the contracting parties would have implicitly agreed to have energy covered by primary legislation without explicitly referring to it seems unlikely. The same is true for the argument of having forgotten to include it. It is obviously difficult to consolidate this with the role that energy supply played at that time and the public policy approach applied by Member States. If at all the absence of energy in the EEC treaty can be interpreted as a way of Member States postponing the tricky decisions on how to treat energy to the future.

New Quality of European Integration: Moving from a Single to an Internal Market

The argument of electricity being implicitly included raises an obvious additional question. Why would primary law for almost half a decade not be applied to the energy sector? Ehlermann (1994) does not provide an explicit answer to that question. However, he suggests that the integration process had reached a new stage moving from a common market to a single market (Ehlermann 1994: 346). According to him, that qualitative shift in European Integration calls for making the energy sector subject to primary law.

This argument seems to be inspired by the adoption of the SEA and the political commitment by Member States to complete the internal market (chapter 5.2). But neither the SEA nor the newly introduced Art. 7a to the EC treaty provided guidance on how to treat the energy sector with regard to primary legislation. That was reflected by the measures that the Commission opted for after 1988 with regard to the establishment of an internal energy market, between hesitating and pushing for energy liberalization.

The Commission: Between Hesitating and Pushing for Energy Liberalization

The ambiguous legal basis and unclear political mandate concerning Community competences with regard to energy market regulation is visible by comparing measures outlined by the Commission to establish the internal energy market and push Member States to engage in energy liberalization and, thus, shift towards competitive electricity and gas markets, and its tangible actions. The discussed approach to create a competitive internal energy market was based on two elements (COM (88)238: 14–25):

- Removal of technical barriers to energy trade

- Application of Community primary legislation on the energy sector:
 - a. Rules on the free movement of goods (Art. 30–36 EEC Treaty)
 - b. Rules on state monopolies (Art. 37 EEC Treaty)
 - c. Rules on competition (Art. 85–90 EEC Treaty)

The removal of technical barriers was to include harmonization of rules and technical norms as well as the opening of public procurement and the removal of fiscal barriers. The Commission was aware at that time that tackling public procurement in the energy sector, which meant purchasing procedures and agreements for primary energy, for power generation or electricity resale, may be highly political and problematic issues (COM (88)238: 16):

“[...], the inclusion of these purchases raises questions which go far beyond the objectives sought in the policy of opening the public market.”

In other words, the Commission was aware that by creating a competitive energy market it would go beyond simply reducing trade barriers but in effect engage in an economical reorganization of electricity and gas supply in Member States. In other words, the Community (later the EU) would push Member States to engage in energy liberalization. The main concern of the Commission was that this had the potential to raise political resistance on the national level and as a result hamper the establishment of an internal energy market (COM (88)238: 16).

The application of primary legislation to the energy sector of Member States was an equally controversial issue. In effect, the Commission refrained from the application of competition rules on electricity and gas supply.²⁹ The application could have been interpreted as a political act exerted by the Community (later the EU) as it would have forced a public policy change in Member States, and that based on an ambiguous legal basis and very controversial political legitimacy. Political legitimacy required a clear political mandate provided by the Member States to the Community. It meant going the way of secondary legislation and gaining support in the Council of Ministers and European Parliament for energy liberalization.

²⁹ Cameron (2007: 47) argues that the application of primary law was delayed for reasons of clarification which was to be provided by the European Court of Justice (ECJ) concerning conformity of certain national practices with the principle of free movement of goods in the Community (e.g. existence of public undertakings, monopoly rights, and import and export restrictions). However, in reality the ECJ avoided to act as a policymaker and as a forerunner to liberalization. Instead its rulings reflected the public policy change taking place in Member States characterized by moving towards a more competitive market environment (Schmidt 1998: 339).

5.2.3 CAUTIOUSLY TOWARDS A MORE COMPETITIVE MARKET ENVIRONMENT

Given the legal ambiguity and political legitimacy that surrounded the public policy change that Community measures (later the EU) would be calling for by the creation of an internal energy market, the Commission opted for proposing initial directives that explicitly avoided pushing for change in the economic organization of electricity and gas supply in the Member States. That approach changed by 1992, when the Commission attempted to explicitly push Member States to introduce a competitive market environment. However, that attempt at changing the rules of the game for electricity and gas supply in Member States, in the form of a draft directive, failed. It took additional four years until the first directive was adopted, calling upon Member States to start with electricity liberalization in 1996 and an additional six years for the first directive introducing first steps towards gas liberalization in 1998. Together they are commonly referred to as the first Energy Legislation Package (ELP). As such they reflect not only a successful Commission in setting the political agenda but also increasing support for energy liberalization by policymakers in Member States.

Liberalizing Trade in Electricity and Gas between Member States

The initial electricity and gas directives, outlined in the following table, did not call for a fundamental change in the economic organization of energy supply. They were in line with what the Commission referred to, in its working paper, as *a more integrated European energy market*.

Table 9: Directives towards a More Integrated European Energy Market

Year	Legislation	Purpose	Effect
1990	Electricity Transit Directive (Directive 90/547/EEC).	Facilitate cross-border power transit.	
1990	Energy Price Transparency directive (Directive 90/377/EEC).	Provide Statistical Office of the EEC with energy rates charged to customers.	Reducing trade barriers between Member States concerning energy trading.
1991	Gas Transit Directive (Directive 91/296/EEC).	Facilitate cross-border gas transit.	

An assessment of the initial directives reveals that they basically tackled technical barriers to energy trade between Member States—in other words, those directives aimed at energy trade liberalization on the regional level in Europe.

The origination of the directives is interesting. While the final versions adopted did not exert pressure on Member States to move towards regulating for competition (chapter 2.4), their initial drafts already included such elements. For example, a move towards third party access (TPA) was already visible in the initial drafts of the Electricity and the Gas Transit Directives (Andersen 2001: 12). Both called upon national grid owners to facilitate access to transmission lines or pipelines for third parties, enabling those to carry electricity or gas through their grids. The Commission's original proposal for the Electricity Transit Directive was extremely far reaching. It even stipulated the establishment of a common carrier system for the Community (Andersen 2001: 12). In addition to resistance by Member States, it was also the strong opposition of the electricity suppliers that led, in the end, to the removal of this clause. The long time that it took to adopt both directives indicated the difficulties and resistance that the Commission would face in the following years by pushing for the creation of an internal energy market. The Electricity Transit Directive took almost two years until it was adopted by the Council (Andersen 2001: 12).

On the national level, it was in particular Germany and the Netherlands that opposed the directives (Andersen 2001: 12). Given that both countries were endowed with significant domestic gas reserves this came rather unsurprisingly as gas liberalization would have threatened the existent public property approach (chapter 2.3.3). However, the process of trade liberalization came to a halt when the Council of Ministers rejected the proposal for an Energy Investment Directive (Andersen 2001: 12). Increasing the transparency for national tenders for large-scale investments in the energy sector, by an enhanced exchange of information, definitely went too far for Member States.

A Failed First Attempt at Changing the Rules of the Game

Still refraining from using primary law to enforce (more) competition in the electricity and gas supply of its Member States, the Commission proposed two new directives in 1992 explicitly aimed at establishing so-called common rules for the internal energy market. Those directives, one for electricity and one for gas, were clearly directed at pushing Member States towards a more competitive market environment for the network-bound energy sector.

In the understanding of the Commission those directives did not legally establish substantial new rights or obligations. According to it, they were simply specifying the existent legislation applicable to the energy sector of the Member States derived from primary legislation (Ehlermann 1994: 343). One can interpret the directives as a substitute to the direct application of Community (from then on EU) primary legislation. It was also a new approach by the Commission to gain a political mandate not only for creating but also for enforcing the establishment of an internal energy market. In other words, this meant the creation of a competitive market environment for electricity and gas on its territory, calling for electricity and gas liberalization on the national level.

The proposed draft directives for electricity and gas clearly reflected a move towards getting Member States to change their existent market regulation and as such the public policy approach applied to electricity and gas supply. Besides referring to the principals of freedom of market entry and freedom of investments (e.g. changing the licensing and permitting systems), the directives explicitly aimed at changing the rules of the game (chapter 2.4.1) by calling for (Ehlermann 1994: 342):

- *Unbundling*: The directives stipulated the separation of accounts for different business activities in vertically integrated companies aiming at reducing the potential for discrimination for grid access.
- *Third party access*: The right for access to the networks was to enable third parties to carry electricity and gas through transmission lines and pipelines (limited to large industrial consumers and distribution companies).
- *Market opening*: In an initial stage this was envisaged for large industrial consumers and distribution companies, but supposed to be extended gradually.

An interesting aspect is that the directives did not tackle the existing import and export monopolies held by the large vertically integrated national energy companies at that time. The reason for that was that the Commission already considered them an obvious breach of Article 27 of the EC Treaty and expected the European Court of Justice (ECJ) to take care of that issue in infringement procedures (Ehlermann 1994: 349). However, the court decisions in 1997 showed that the ECJ did not support that approach, as it did not deem to have legislative powers and, thus, avoided acting as a policymaker on the national level on behalf of the Commission (Schmidt 1998: 339).

This clearly highlights that what the Commission considered as merely specifying the EU competences for electricity and gas market regulation, based on rights and obligations derived

from primary legislation, was politically much more controversial. It was obvious that the Commission's ambition was to clash sooner or later with the political realities in the Member States. Only in a few countries—the UK and the Nordic states (non-EU Member States at that time)—were ambitions to move towards a more competitive market environment politically supported and visible.

Thus, and rather unsurprisingly, those directives led to a deadlock between the Commission and the Council of Ministers in the legislative process. The disagreement was huge as the Council returned the proposal to the Commission without a committee discussion or any detailed political instructions for the Commission's future work on that issue (Andersen 2001: 113). With this, Member States sent a strong signal to the Commission. Any attempt to extend Community (EU) influence on electricity and gas market regulation on the national level and, thereby, to challenge the existent economic organization for electricity and gas supply would face strong national resistance.³⁰

A Successful Second Attempt at Changing the Rules of the Game

The deadlock lasted for almost two years, until the European Parliament decided in November 1993 to rework the Commission's draft directives and issue its own proposal. That resulted three years later, in 1996, in the successful adoption of the first Electricity Directive (96/92/EC) and a few years later, in 1998, in the first Gas Directive (98/30/EC). Both, as already mentioned, were commonly referred to as the first Energy Legislation Package (ELP). The first ELP no longer explicitly called for common rules for the internal market but for harmonization of the rules for electricity and gas supply (chapter 6.1). However, the ultimate effect was the same. It prescribed a public policy shift for Member States concerning the economic organization of electricity and gas supply on their territory and, thus, engaging in energy liberalization. This was possible due to institutional changes within in the Community that strengthened the position of the Commission and the European Parliament in policymaking (Andersen 2001: 20, Cameron 2007: 52–56). However, the most decisive factor is probably that energy liberalization benefited from growing political support in Member States. This is supported by the research results gained later in the case studies and analysis of EU influence on energy liberalization in Member States later in this study (chapters 8 and 9).

³⁰ The UK proved to be the closest ally of the Commission. Large industrial consumers also supported the Commission's directives as they expected to benefit from liberalization in terms of lower energy prices (Andersen 2001: 113).

5.2.4 *FACTORS FACILITATING THE MOVE OF THE EU INTO ENERGY MARKET REGULATION*

Given the huge political opposition by Member States to an increase in Community involvement in energy market regulation on the national level, the adoption of respective legislation a few years later is stunning. It is particularly surprising as the first adopted ELP prescribes a clear shift in public policy approach for Member States and de facto restricts their ability to exert an independent policy concerning the economic organization of electricity and gas supply on their territory. As such, it marks a shift in energy market regulation from the national to the EU level. Three factors provide some explanations and casts light on the reasons that permitted this to happen.

A Strengthened Position of the Commission in Community Policymaking

The SEA introduced qualified decision taking in the Council of Ministers on harmonization measures proposed under Article 8a of the EEC treaty. It changed the voting dynamics in the Council and raised the possibility of adopting more controversial Community legislation. Proposals were likelier to find a majority, which implicitly strengthened the Commission in the legislative process vis-à-vis Member States. However, the failed attempt with regard to the first electricity and gas directives in 1992 illustrate that gaining the support of a majority of Member States was still not a given thing. It proved only successful with an increasing amount of countries supporting energy liberalization a few years later.

A Strengthened Position of the European Parliament in EU Policymaking

One can argue that the deadlock of 1992 with regard to the first electricity and gas directives was solved thanks to an institutional change introduced with the Maastricht Treaty in 1992. It increased the role of the European Parliament in the legislative process regarding internal market legislation (including a few other policy areas). With the newly introduced co-decision procedure the European Parliament gained more independence and power as a legislative body. It no longer had to rely on the Commission's support with regard to amendments to legislative proposals.

This enabled the European Parliament to solve the deadlock in 1996 by issuing its own proposal that provided the basis for an agreement between the Council of Ministers and the Commission (Andersen 2001: 120). Interestingly, the proposal was not welcomed by the

Commission. It considered it a counterproposal that aimed at maintaining the current state in the energy sector for the coming years (Ehlermann 1994: 343). That is partially true as the proposal called for much more limited energy liberalization. The biggest setback for the Commission was that the European Parliament's proposal basically entailed no changes to gas supply. However, it was the Parliament's acknowledgement of the political realities in Member States that solved the deadlock and paved the way for the adoption of the first ELP and, eventually, energy liberalization in Member States.

Increasing Political Support for Energy Liberalization in Member States

It would be incorrect to credit the successful adoption of the first electricity and gas directives alone to institutional changes in the EU empowering the Commission and the European Parliament. The final decision remained with the Council of Ministers and, as such, Member States. And although there were differences between the initial draft proposals, in effect, the direction was the same, gradually introducing competition to electricity and gas supply. Thus, the adoption of the first Energy Legislation Package indicates a change in political preferences in Member States with regard to the economic organization of their network-bound energy sector.

Starting with Great Britain in the 1980s, the Member States grew increasingly inclined towards energy liberalization in the course of the 1990s. The adoption of the directives was preceded by elections of governments clearly supportive of energy liberalization, which at the very least reflected the success of neoliberal economic ideas. It involved Member States with considerable voting power in the Council of Ministers. Among them was Spain with Jose Maria Aznar, a clear supporter of energy liberalization in Spain and the EU, serving as Prime Minister of Spain from 1996 to 2000. Italy is another example, with Romano Prodi another supporter of energy liberalization serving as Prime Minister of Italy from 1996 to 1998, and later from 1999 to 2004, as President of the Commission. Finally, by 1996 the UK was not the sole country in the EU having liberalized parts of its network-bound energy sector. The accession of Sweden and Finland to the EU in 1995 increased the political support within the Council of Ministers for EU energy market legislation that would prescribe Member States with a more competitive energy market environment (Ehlermann 1994: 345).

5.3 POLITICAL AND LEGAL BASIS FOR EU ENERGY MARKET REGULATION

The previous discussion (chapters 5.1 and 5.2) highlights two aspects of the EU's expansion into energy market regulation. The EU's engagement in electricity and gas market regulation clearly differed from its previous involvement in energy market regulation, such as in the ECSC or with the EAEC. The reason for that difference is that the EU's ambitions in energy market regulation by the end of the 1980s, though influenced by the internal market, aimed de facto at pushing for public policy change in Member States, acknowledged by the Commission (chapter 5.2.3). As seen, the aspired EU energy market regulation was in effect prescribing a specific public policy approach for Member States for the economic organization of their electricity and gas supply. As this implicitly limits the independent policymaking power of Member States, it raises questions concerning the political legitimacy and legal basis for the EU to act in such a manner.

5.3.1 *POLITICAL LEGITIMACY AND LEGAL BASIS UNTIL 2009*

This political legitimacy and legal basis issues surrounding the EU's involvement in energy market regulation were real but unspoken and are illustrated by two factors. First, there were the clumsy attempts to somehow justify Community and later EU competences for energy market regulation based on primary legislation (5.2.2). Second, there was the Commission's explicit reliance on the European Court of Justice to enforce more competition in Member States through infringement procedures (5.2.3). The latter shows that the Commission was hesitating to make electricity and gas supply subject to primary legislation, such as the Community competition rules and, thereby, simply enforcing rights and obligations deemed existent. The secondary legislation adopted in 1996 and 1998, the electricity and gas directive—initially framed by the Commission as an attempt to specify the application of primary legislation on electricity and gas supply in Member States—was necessary for two reasons. It worked de facto as a political mandate for the EU to exert influence on energy market regulation in Member States and helped to bridge the ambiguous legal foundation for the EU's involvement in energy market regulation.

However, Member States were very careful with the political mandate they assigned to the Commission. While the initial proposed directives by the Commission were referred to as specifying the application of existing EU primary law to the energy sector, the finally adopted directives in 1996 and 1998 were referred to in a more general sense as harmonizing the rules for electricity and gas supply. This clearly highlights that Member States did not want to

make their energy sector explicitly subject to EU policymaking. In other words, if a policy change was to happen with regard to the economic organization of electricity and gas supply Member States wanted to remain in the driving seat. This clearly differed with the original ambitions of the Commission, which seemed to have been more inclined to far-reaching changes. That difference became visible with the second and third Energy Legislation Packages (ELP) adopted in 2003 and 2009. Each package was subject to tough negotiations centering on shared competences between the EU and the Member States for energy market regulation. With regard to energy liberalization, each ELP can be understood as an additional step towards a competitive market environment by changing the rules of the game for electricity and gas supply in Member States (chapter 6).

The first ELP had far-reaching effects with regard to the application of EU primary legislation. Eventually, the Commission was self-confident enough to apply internal market rules to the energy sector. Those were measures to establish a competitive internal energy market that were already outlined in its internal working paper in 1988 (chapter 5.2.2). The directives also provided the legal basis for the European Court of Justice (ECJ) to take a new and tougher stance on competition rule infringements in the energy sector of Member States. However, this didn't happen immediately, as expected by the Commission, but gradually, in effect, following the policy developments in Member States (chapter 6.3.2).

The behavior of the ECJ indicates that the secondary legislation provided, additionally to the political mandate for the EU's influence on energy market regulation in Member States, the necessary legal basis for EU competences in energy market regulation and, thereby, the application of primary legislation. It means that the legal foundation of EU action in the energy market was only provided on an ad hoc basis grounded in secondary legislation. Ambiguity concerning the legal basis of EU energy market regulation in primary legislation remained until 2009. Only with the Treaty of Lisbon which entered into force in 2009, energy became explicitly subject to EU policymaking and the internal market rules and principles by establishing an energy legal section in EU primary legislation.

5.3.2 DEVELOPMENT OF THE LEGAL BASIS AND LIMITS TO EU INFLUENCE

It is important to notice that secondary legislation provided the Commission only with a limited political mandate. This is illustrated by the first attempt to put the EU's involvement in energy market regulation on a firm legal basis in primary legislation in 1996. Its failure can be interpreted as a manifestation of Member States to limit the EU's policymaking power

with regard to the energy sector on the national level. The successful second attempt with the Treaty of Lisbon should be treated carefully. It also restricts EU influence on energy policy in Member States as it refers to its limits. By legally limiting EU influence with regard to a country's energy supply structure it bears potential for conflict within and between Member States and the Community. We will discuss possible conflicts later in this study with regard to the future of EU influence, and energy security concerns in competitive energy markets with a focus on the Baltic Sea Region (chapter 10).

A Failed Attempt to Introduce an Energy Chapter to EU Primary Legislation in 1996

That the ambiguity concerning the EU's competences for energy market regulation was a reality became visible as the European Parliament, in 1996, suggested creating a specific energy chapter in a reworked Maastricht Treaty (Midttun 1997: 269). Unsurprisingly, Member States did not support it and, thereby, decided implicitly in favor of keeping the status quo. In other words, the Member States did not want to legally assign the EU clear competences for energy market regulation.

Aware of the political realities, the Commission avoided any open discussion on the European Parliament's proposal (Midttun 1997: 270). On the one hand, the Commission may have tried to reduce the risk that a public discussion would have posed to the relevant secondary legislation, which was to be adopted. On the other hand, any clarification of the legal ambiguity may have had the potential to reduce the implicit power that the Commission derived from the legal ambiguity. In the worst case, an energy chapter in EU primary legislation would have limited the Commission's legal competences to merely exert influence on trade liberalization between Member States.

As a result, the EU's influence on electricity and gas market regulation, and as such energy liberalization in Member States, relied on an ad hoc political mandate that made the energy sector subject to EU primary legislation. This situation changed only in December 2009 when the Treaty of Lisbon entered into force, making energy explicitly subject to EU policymaking and the internal market rules and principals by introducing an energy legal section in EU primary legislation.

Introducing an Energy Legal Section in EU Primary Legislation in 2009

At first glance the adoption of an energy legal section seems to put the EU competences in energy market regulation on a firm legal basis and, thus, can be understood as a step towards

strengthening the EU's legal and political mandate in exerting influence on energy market regulation in Member States.

With the Treaty of Lisbon, in effect in the Treaty on the Functioning of the European Union (TFEU), EU primary Legislation since 2009 has explicitly referred to the EU exerting shared competences along with Member States with regard to the energy sector (Art. 4 TFEU). Among the most important energy policy areas mentioned in section XXI of the TFEU, and now explicitly subject to EU policymaking, are (Herdegen 2010: 450):

- Energy supply crisis mechanism (Art. 122);
- Development of trans-energy networks in the EU (Art. 170);
- Establishment of a functioning internal market for energy (Art. 194).

On second glance, a closer look at the legal section indicates that Member States intended with the energy section to also put limits on EU influence on energy policy and, eventually, on EU energy market regulation. In anticipation that there is a need to allow for accommodating legitimate national political interests, the TFEU provides the legal basis in Article 194 (2c), which limits EU influence on Member States as soon as they can be considered as:

(c) measures significantly affecting a Member State's choice between different energy sources and the general structure of its energy supply.

In other words, based on Article 194 (2c) Member States retain the right to determine their energy supply structure and energy mix. How Article 194 (2c) of the TFEU will determine EU influence on energy policy and energy market regulation in Member States is unclear for the moment.

With regard to EU energy market regulation, in particular the establishment of a competitive market environment, one prediction is possible. Competitive electricity and gas markets are likely to alter the energy supply structure and mix in Member States, and not always in favorable terms with regard to energy security (chapters 2.5.2 and 10.2). Article 194 (2c) in EU primary legislation expresses that national energy policy and energy security still rank high on the political agenda of Member States. Article 194 (2c) may apply in a case where EU energy market regulation would affect a Member State's choice between different energy sources and the general structure of its energy supply leading to serious energy security concerns. While substantial clarification remains necessary concerning the key concepts of the article such as choice between different energy sources and general structure of energy

supply, it seems likely that national energy security concerns may determine (and set the limits to) the future development of EU energy market regulation.

“The commitment procedure thus allows the Commission to bargain liberalization outcomes directly with the incumbent companies without going through the interface of NRAs [national regulatory authorities] and Member States.”

–Leigh Hancher and Adrien Hauteclouque (2010)

6 DEVELOPMENT OF EU ENERGY MARKET REGULATION

After having discussed how the EU expanded its influence into electricity and gas market regulation, it is necessary to take a closer look at the development of the related EU regulatory framework. It forms the precondition of addressing the influence of the EU on energy liberalization later in the cases studies (chapter 8). We will focus in the case studies on the EU's influence in changing the rules of the game for electricity and gas supply in Member States. Thereby, the Energy Legislation Packages (ELPs) (chapters 6.1 and 6.2) discussed in this chapter play a central role. However, we will also address the EU's use of EU competition rules to foster the creation of competitive markets (chapter 6.3). While not a central element of investigation in the cases studies, it highlights a recent phenomenon referred to as manufacturing competitive energy market (chapter 6.3.3), which may become more important in the coming years (chapter 10.1).

6.1 ENERGY LEGISLATION PACKAGES (ELPs)

As mentioned, the adoption of the Electricity Directive in 1996 and the Gas Directive in 1998 are commonly referred to as the first Energy Legislation Package (ELP). It was followed in 2003 by a second and in 2009 a third ELP. All legislation packages were the outcome of tough and long legislation processes often characterized by strong political resistance by Member States. They can be understood as a key pillar of the EU regulatory architecture on which the internal energy market is based. Besides facilitating cross-border energy trading (not explicitly addressed in this study), the most important effect of the ELPs was providing new rules of the game for electricity and gas supply in order to establish a competitive market environment. Though often referred to as harmonization of national legislation or regulation, in effect, the ELPs called, depending on the state of energy liberalization in a country, for a more or less explicit public policy shift with regard to the economic organization of electricity

and gas supply. In terms of changing the rules of the game (chapter 2.4.1) this basically amounted to:

- Unbundling of vertically integrated companies
- Third party access (TPA) to networks
- Market opening for (eligible) consumers

Why were there three legislation packages? Each of them was an answer to progress reports done by the Commission that identified impediments to the working of the internal energy market. It resulted in a process of constantly improving regulation for competition on the EU level.

The first ELP allowed for much discretion among the Member States on how far they wanted to go with changing the rules of the game and, thus, moving towards a competitive market environment. It resulted in the creation of electricity and gas markets differing in the scope of competition. The Commission feared that this patchwork of different competitive markets if persisting would hinder the creation of a functioning internal energy market for many years (Cameron 2005: 8). Thus, it argued for additional energy legislation aiming at further harmonizing national energy market regulations, leading to the second ELP.

The second ELP specified the rules outlined in the first ELP aiming at a level playing field in terms of the rules of the game among Member States. The legislation adopted in 2003 (Directive 2003/54/EC and Directive 2003/55/EC) repealed the previous directives. The effect was a more uniform approach to TPA by excluding negotiated TPA and prescribing Member States regulate TPA. In addition, it provided for a legally binding time schedule for market opening. Finally, it strengthened regulation for competition by urging Member States to apply legal unbundling and to establish energy regulators. Interestingly, although the original ambition of the EU was to create an internal energy market, it was only the second ELP that specifically addressed that issue. It included two regulations aiming at facilitating and enhancing cross-border electricity and gas trading (Electricity Regulation 1228/2003/EC and Gas Regulation 1775/2005/EC). They were directed at harmonizing regulatory procedures and reducing the potential risk of third party discrimination concerning access to cross-border electricity and gas interconnections.

The third ELP, adopted in summer 2009, is so far the last of a series of legislation packages. Similarly to the second ELP, it further specified the rules of the game. On the other hand, it reflects a clear shift in focus from changing (first ELP) and harmonizing the rules of the game (second ELP) towards tackling consumer rights and clarifying and enhancing the competences

of national energy regulators as well as improving regional cooperation. That latter reveals an important shift in the approach of the Commission concerning the development of an internal energy market. After two decades of pursuing the idea of creating a so-called European copper plate, the Commission moved towards a more evolutionary approach regarding the establishment of the internal energy market, which is the establishment of regional energy markets in a first step, which are expected to later merge into a wider European energy market. The increasing attention towards consumer rights can be understood as reflecting a general trend in Member States. After having changed the rules of the game most of the electricity and gas markets still did not deliver the vibrant competitive market environment that was initially expected. One reason identified was a lack of consumer participation.³¹ This is widely perceived by national energy regulators as a key impediment to the proper functioning of competitive energy markets. Thus, it called for measures supporting the participation of the consumers in the energy markets. This and the ELPs, as such, with the aim of enabling and successively increasing competition, illustrate to some extent the (problematic) logic behind regulating for competition as mentioned earlier (chapter 2.4).

6.2 CHANGING THE RULES OF THE GAME FROM 1996 TO 2009

6.2.1 LIBERALIZATION OF ELECTRICITY SUPPLY

The following table provides an overview of the key legal provisions of the three ELPs with a focus on changing the rules of the game for electricity supply. As we see, the directives in the ELPs were complementary. Successively they specified previous energy market legislation. Each new electricity directive repealed and built on the former.

³¹ Consumers are expected to contribute to competition by comparing energy prices and switching suppliers. Various Member States have recently established programs supporting consumer switching by providing information on energy rates and facilitating changing energy suppliers. The consumer switching rate also works as a coefficient to measure the performance of a competitive market. It becomes problematic if the overall performance of a competitive market is narrowed down to this factor, which as a coefficient provides no information beyond the fact that consumers are changing suppliers, such as how good competitive markets satisfy consumer needs.

Table 10: EU Energy Legislation Aiming at Electricity Liberalization

	First ELP	Second ELP	Third ELP
Electricity Directive	Directive 96/92/EC	Directive 2003/54/EC	Directive 2009/72/EC
Date of adoption	19.12. 1996	26.06.2003	13.07.2009
Deadline for transposition	18.02.1999	01.07.2004	03.03.2011
Key regulation for competition	Basic content in ELP 1	Added by ELP 2	Added by ELP 3
Unbundling	(Art. 14) Organizational unbundling: Separation of accounts and business functions.	(Art. 10/15) Legal unbundling.	(Art. 13) Three options: creation of independent ISO, or (Art. 17) ITO (de facto enhanced legal unbundling), or full ownership unbundling.
TPA	(Art. 19) Single buyer, negotiated TPA, or regulated TPA.	(Art. 20) Only regulated TPA allowed.	
Market opening	(Art. 19) Initially large consumers of 40 GWh/year and more, gradually full opening.	(Art. 21) Large consumers by 1 July 2004, all consumers by 1 July 2007.	

A Closer Look at Unbundling

As already mentioned the first ELP resulted in a patchwork of national competitive energy markets in the EU. By asking only for the separation of accounts and business functions, the electricity directive adopted in 1996 left the decision concerning the scope of unbundling to Member States. While some Member States did not move beyond that requirement others went much further (Di Paoli 2001: 22). Some countries opted for legal unbundling requiring vertically integrated electricity companies to spin off transmissions and distribution of divisions into legally independent companies. Others went even further by establishing independent transmission system operators—basically, introducing ownership unbundling. The second and third ELPs tackled those differences, aiming at more harmonization practice

among the Member States, however, obviously opting for the stronger approach than simply organizational unbundling.

A Closer Look at TPA

The unbundling provisions stated in the first ELP were not the only factor contributing to a patchwork of energy liberalization among Member States. The first ELP reflected the political struggle between Member States concerning two different concepts of a competitive market environment and, eventually, energy liberalization (Midttun 1997: 270). In other words, the first ELP reflected the various public policies concerning the economic organization of electricity supply applied in Member States at that time (Genoud and Finger 2004: 34). It also affected the legal provisions concerning TPA. Compared to negotiated TPA, regulated TPA meant a stronger move towards regulating for competition. On the other side, the single-buyer approach basically maintained the status quo and, thus, can be understood as amounting to as little change as possible. According to many observers, the latter was included to satisfy the political interests of France, directed at protecting its monopolistic electricity company, Electricité de France (EdF), acting as a single buyer in the market (Genoud and Finger 2004: 33). However, France was not alone in supporting the inclusion of the single-buyer approach in the electricity directive. Greece and Ireland were also in favor of that approach (Midttun 1997: 268). Like the Netherlands and Denmark, they were basically concerned about accommodating the pressure of the Commission to move towards a more competitive market environment with their existent public policy for the economic organization of electricity supply, which amounted to a planned economy approach (Midttun 1997: 268). Interestingly, though the single-buyer approach was included as an option, in the end all Member States opted for a more far-reaching move and, thereby, either for negotiated or regulated TPA (Cameron 2005: 9). However, both ways of providing access to the grid raised concerns with regard to their contribution to the establishment of a competitive market environment. That was particularly true for negotiated TPA as it made access to the grid subject to negotiations between the network owners and third parties seeking access, such as large consumers and electricity providers not in the possession of a transmission network. For obvious reasons, the network owner was in a better negotiation position (Cameron 2005: 9). Unsurprisingly, TPA became an important subject for the second ELP, which drastically reduced the previously available options down to regulated TPA. In addition it required Member States to establish independent energy regulators that would be in charge of supervising and approving TPA conditions and rates provided by the transmission system owners.

6.2.2 LIBERALIZATION OF GAS SUPPLY

The following table provides an overview of key legal provisions of the three ELPs with a focus on changing the rules of the game for gas supply. As for electricity, the gas directives were also complementary. Successively they specified previous energy market legislation. Each new gas directive repealed and built on the former.

Table 11: EU Energy Legislation Aiming at Gas Liberalization

	First ELP	Second ELP	Third ELP
Gas Directive	Directive 98/30/EC	Directive 2003/55/EC	Directive 2009/73/EC
Date of adoption	22.06.1998	26.06.2003	13.07.2009
Deadline for transposition	10.08.2000	01.07.2004	03.03.2011
Key regulation for competition	Basic content in ELP 1	Added by ELP 2	Added by ELP 3
Unbundling	(Art. 13) Organizational unbundling: Separation of accounts (but not functional separation).	(Art. 9/13) Legal unbundling.	(Art. 14) Three options: Full ownership unbundling, creation of independent ISO, or (Art. 17) ITO (de facto enhanced legal unbundling).
TPA	(Art. 19) Negotiated TPA or regulated TPA.	(Art. 19) Only regulated TPA allowed (storage can still chose between regulated TPA or negotiated TPA, (Art. 20) up-stream treated separately by Member States).	
Market opening	(Art. 19) Initially large consumers of 25 m ³ /year and more, gradually full opening.	(Art. 23) Large consumers by 1 July 2004. All consumers by 1 July 2007.	

A Closer Look at Unbundling

Similarly to TPA in the electricity directive adopted in 1996, the gas directive of 1998 also reflected various national public policy approaches. Compared to electricity the gas directive was less far reaching. The legislation focused basically on unbundling. It did not require the functional separation of transmission from other businesses within vertically integrated companies. The aim was not to change organizational or management structures. This reflected the political hesitation of Member States to engage in gas liberalization (Arentsen 2004: 70). States endowed with gas reserves, such as the Netherlands and Germany, were especially reluctant to give up their public property approach guiding the economic organization of gas supply. Those countries made it difficult to reach a compromise among Member States on EU legislation concerning gas liberalization (Arentsen 2004: 72). That changed with the second and third ELPs, which introduced the same unbundling requirements as applied to the electricity industry.

Unbundling and Third Countries a Special Issue

Energy liberalization in gas was more difficult for an additional reason, the involvement of third countries. The transmission networks, in particular pipelines, were owned not only by gas companies domiciled in the Member States but also by companies from third countries, not belonging to the EU, in particular Algeria and Russia. While this was not an issue in the first and second ELPs, this changed with the third one. The third ELP includes provisions that extended the unbundling provisions to gas and electricity transmission companies domiciled in non-EU countries (Art. 11 Regulation 2009/72/EC and 2009/73/EC). Based on EU energy legislation the national energy regulators of Member States may refuse certification of a foreign energy company and, thus, business activity in the community if it does not comply with the unbundling requirements effective in the EU. This issue highlights an additional feature of the ELPs. They worked as an instrument of the Commission to increase the power of the national energy regulators, their natural allies with regard to establishing a competitive internal energy market. Among others the third ELP provided national regulators with the power to deny market access if the business activities of a foreign energy company (gas or electricity) was believed to pose an energy security risk to the particular Member State or the EU's security of supply. It also illustrates how by increasing the power of national energy regulators the EU effectively extended its regulatory influence on the national level. In case a regulator deemed a foreign energy company as posing a risk it would have to take into

account the view expressed by the Commission on that issue as well. The idea of making foreign energy companies domiciled in non-EU Member States subject to the same unbundling requirements is aimed at securing the achieved progress with regard to unbundling vertically integrated companies and thus the steps made towards a competitive market environment. This approach is not surprising. It can be understood as a formalized approach that the EU already applies in the context of exporting its energy market regulation (chapter 7). Thereby, it follows the principle of reciprocity (chapter 7.1.1) applied by the EU when allowing foreign companies access to the internal energy market.

6.2.3 NEW REGULATORY INSTITUTIONS ON THE NATIONAL AND EU LEVEL

Besides changing and harmonizing the rules of the game for electricity and gas supply, the ELPs led also to the creation of new regulatory institutions on the national and EU level. Given that the EU's engagement in energy market regulation was driven by creating an internal energy market (chapter 5.2), those new institutions were established to facilitate cross-border energy trading.

Independent Energy Regulators in Member States

The second ELP required Member States, complementary to applying regulated TPA, to create independent energy regulators with a certain set of competences. Those institutions were expected to ensure that concerning access to the networks new market participants would not be discriminated. Thus, an important competence of the regulators was to approve TPA rates and supervise network access (Cameron 2005: 19).

New EU Energy Institutions: From EU Energy Forums to an EU Supra-Regulator

The first ELP was accompanied by the establishment of two regulatory forums, one for electricity in 1996 (Florence Forum) and one for gas in 1998 (Madrid Forum). They were established to provide stakeholders with an institutional framework to discuss issues related to the creation of the internal energy market. In the focus were technical and commercial barriers. The establishment of the forums was followed by the founding of specific bodies for national regulators, such as the Council of European Energy Regulators (CEER) founded in 2000. It was followed by the European Regulator's Group for Electricity and Gas (ERGEG) established in 2003 by the second ELP (Decision 2003/796/EC). The establishment of the

ERGEG was intended to formalize the cooperation between the national energy regulator and the Commission concerning drafting new energy legislation (Hancher and Hauteclouque 2009: 3). In addition to that the ERGEG also provided the basis for more formalized cooperation among national regulators with regard to the establishment of regional energy markets. However, the ERGEG was a rather weak institution in terms of tangible contributions to the creation of an internal energy market. It neither contributed to the development of interconnection capacities nor provided the basis for coordinating the national energy policies (Hancher and Hauteclouque 2009: 3). Those factors were understood as important steps towards an internal energy market.

In 2009, the third ELP (Regulation 713/2009/EC) assigned a more formalized regulatory role to the EU in energy market regulation by establishing the Agency for the Cooperation of Energy Regulators (ACER). So far the regulatory role of the EU was basically limited to drafting and enforcing the new rules of the game provided by the ELPs and the application of EU competition rules to the energy sector. In addition to ACER, the third ELP established two additional institutions: a European Network of Transmission System Operators (ENTSOs) for electricity (Regulation 714/2009/EC) and an ENTSO for gas (Regulation 715/2009/EC).³² ACER and the ENTSOs were expected to contribute more to the development of the internal energy market than the ERGEG did previously. The following table (based on Article 6, Regulation 713/2009/EC) outlines some of the key responsibilities of ACER and illustrates a significant step in regulatory competences of the EU level with regard to energy market regulation.

Table 12: EU Regulatory Competences Based on ACER

-
- Participation in the development of European network codes.
 - Monitoring the development of the energy markets, in particular in relation to retail gas and electricity prices.
 - Monitoring the implementation of the TSO's 10-year infrastructure investment plans.
 - Establishing non-binding framework guidelines on conditions for access to the network for cross-border electricity and gas exchanges.
-

³² The ENTSOs are intended to unify and formalize the existing networks of the national transmission system operators (TSOs). They were built upon the regional TSO associations, such as the Union for the Coordination of Transmission of Electricity (UCTE), NORDEL or BALTSO. The ENTSOs are expected to contribute to a more European (internal market) approach concerning the cooperation of national TSOs in the EU.

Besides harmonizing energy regulations one of the most interesting competences of ACER is its advisory role with regard to the 10-year development plan for infrastructure investments in the EU (TYNDP). This takes place under the leadership of the ENTSOs (Hancher and Hauteclouque 2009: 3). The TYNDP is expected to substantially contribute to the integration of the national energy markets and, thus, the development of the internal energy market.³³ The 10-year plan shows similarities to the Trans-European Energy Networks Program (TEN-E). That program was established in 1995 with a similar aim, namely, to identify and support infrastructure projects of EU relevance and, as such, contribute to the internal energy market. The experience with the TEN-E program shows that the tangible impact of such roadmaps on infrastructure integration depends to a large extent if not totally on the extent of EU financial support. The TYNDP published as a pilot project in 2010 does not provide much insight on project financing except for the fact that financing is an open issue (ENTSO-E 2010: 41). In the context of financing, the TYNDP points to an interesting and important issue. According to it, the internal energy market may increase investment risks and, thus, may entail a higher risk of stranded costs.

In addition to fostering the integration of national energy networks, ACER may also be understood as an EU supra-regulator. It may adopt general binding measures on technical and operational cross-border issues. ACER is also expected to address the compliance of (certain) decisions by national regulators with EU legislation. In cases of non-compliance, ACER informs the Commission, which in turn will ask the respective national regulators to withdraw or amend its decision (Hancher and Hauteclouque 2009: 5).

ACER and the ENTSOs mark the last step in the institutionalization of the distinct mode applied by the EU in energy market regulation since 1996, which is called regulation by cooperation (Eberlein 2005: 59).³⁴ ACER and the ENTSOs also illustrate the next step in EU energy market regulation. While the EU was in the past concerned mainly with changing the rules of the game, the establishment of EU regulatory institutions and the 10-year network plans indicate that in the future we may see more direct involvement of the EU with regard to the development of the internal energy market. This is also true with regard to the application of EU competition rules as a tool to fostering the creation of competitive electricity and gas markets (chapters 6.3.3 and 10.1).

³³ As a pilot project, ENTSO-E published the first 10-year network development plan in June 2010. It is aggregating regional plans or initiatives.

³⁴ For more information on the evolution of regulatory institutions in the EU energy market see Lavrijssen-Heijmans and Hancher (2008a and 2008b).

6.3 CHANGING AND GUIDING THE BEHAVIOR OF MARKET PARTICIPANTS

In the course of energy liberalization, in addition to changing the rules of the game in electricity and gas supply, the EU also aimed at changing the behavior of the electricity and gas market participants (chapter 2.4.2). This was done by the application of EU competition rules. In the past, the EU also used competition rules as an instrument by which it intended to contribute to the creation of a competitive market environment. This is illustrated by the following quote of Mario Monti, a former EU Commissioner for Competition (Monti 2003):

“[...] during the initial delicate transition phase from monopolised to liberalised energy markets, the focus should lie, in some occasions, on Commission’s interventions improving effectively the market structure, rather than on formal procedures imposing fines.”

6.3.1 APPLYING EU COMPETITION RULES TO ELECTRICITY AND GAS SUPPLY

With regard to electricity and gas supply, EU competition rules address three generic issues (Cameron 2007: 280): supply competition, access to networks and free consumer choice. In those cases, EU measures are directed at the behavior of certain market participants conflicting with:

- Antitrust (Art. 101 TFEU / Art. 81 EC) and abuse of market power (Art. 102 TFEU / Art. 82 EC);
- State aide (Art. 107 TFEU / Art. 87);
- Control of concentrations between undertakings also referred to as merger regulation (Regulation 139/ 2004/EC).

Commonly, the Commission’s application of EU competition rules is guided by an internal market or community approach. As a consequence, market participants conflicting with EU competition rules show usually (Art. 101 (1) TFEU):

“[...] practices which may affect trade between Member States and which have as their object or effect the prevention, restriction or distortion of competition within the internal market, [...].

A key factor in the application of competition rules is the notion of relevant market. The Commission’s definition of relevant market differs between merger regulation and other cases of intervention (Cameron 2007: 287). With regard to the former some clear guidelines exist

concerning the assessment of mergers and their effect in the context of the internal market. However, it is a much more complex and ambiguous task to simply assess the behavior of individual companies in relation to the internal market. This requires addressing two aspects of a company's market:

- Product market;
- Geographical market.

The product market refers to the product range in which an energy company is engaged. In other words it refers to the goods and services it provides. Examples are gas exploration, power generation, transmission and distribution services, or energy retail. In terms of product market, electricity and gas are treated differently (Cameron 2007: 287). On the other hand, the geographical market can be understood as the geographical area in which a company is active in terms of providing goods and services. Assessing an energy company's action with regard to having distorting effects on competition and the performance of the internal energy market requires an in-depth analysis of its product and geographical markets as well as a thorough understanding of the (dynamic) electricity and gas markets. The complexity and inherent ambiguity of such economic analysis highlights the difficulties that the application of EU competition rules in practice entails, especially concerning the energy sector.

6.3.2 *LIBERALIZATION BY COMPETITION RULES*

The application of EU competition rules to the electricity and gas industry was basically initiated by the adoption of the first and second ELPs (Cameron 2007: 279). Prior, there were only a very few cases of competition rules. The adoption of the first ELP provided the necessary political mandate and legitimacy for the EU not only to engage in energy liberalization (chapter 5.3), but also to make electricity and gas supply subject to EU competition rules. With the first ELP, the Commission was able to employ those measures that it planned to use to create the internal energy market and which it had already outlined in 1988 (chapter 5.2.3).

As Monti's (2003) statement illustrated, in addition to using competition rules as means to ensure free and undistorted competition in the internal market, the Commission also thought of the application of competition rules as an instrument to support the ongoing energy liberalization in Member States and, thus, the creation of a competitive market environment (Cameron 2007: 320). This is reflected by the way the Commission treated the infringements of competition rules by energy companies (Salerno 2008: 15). Until the adoption of the

second ELP in 2003, most companies found guilty of competition law infringements did not end up having to pay fines. This had two reasons. On the one hand, the Commission was well aware that the electricity and gas supply in most countries was in a stage of transition from monopolistic to competitive markets (Cameron 2007: 319). The Commission started to take a tougher stance on infringements only after 2003. On the other hand, the Commission believed that the application of competition rules may be a useful instrument by which it would not only secure competition in the course of liberalization but in effect actively influence the development of a competitive market environment (Cameron 2007: 321). As a consequence, the Commission was less interested in punishing companies for misbehavior. Instead, it preferred legal settlements with energy companies, whereby the remedy would take the form of commercial solutions, such as divestments of business activities or the participation in electricity and gas release programs – measures believed to be beneficial to the development competition.

This approach, favored by the Commission, was facilitated in 2003 by the adoption of a new EU regulation on the implementation of the EU rules on competition (Regulation 1/2003/EC).³⁵ It significantly increased the Commission's ability to make use of competition rules (Cameron 2007: 284). The regulation strengthened EU competition law vis-à-vis national legislation by providing for its supremacy and by making it compulsory for national competition authorities to apply (Art. 3 Regulation 1/2003/EC). In addition, the authorization procedure for the Commission to become active in EU competition rule infringements was removed with regard to the application of EU antitrust (Art. 101 TFEU) and dominant position (Art. 102 TFEU) legislation (Art. 1 Regulation 1/2003/EC). One of the most important changes brought by the new regulation was that the Commission was allowed to impose behavioral or structural remedies for companies believed to be guilty of competition rule infringements (Art. 7 Regulation 1/2003/EC). Along with the newly introduced commitment procedure the Commission now gained the power to negotiate legally binding commitments with companies suspected of EU competition rule infringements (Art. 9 Regulation 1/2003/EC).

However, as previously mentioned, the application of competition rules requires an in-depth economic and business analysis to determine a company's relevant market. However, this is not a simple task, especially, with regard to the energy sector (Hancher and Hautesclouque 2010: 10). Additionally, electricity and gas supply is very complex, and the process of energy

³⁵ It replaced Regulation 17/62/EEC adopted in 1962, which previously provided guidance on the implementation of Articles 85 and 86 of the EEC Treaty (later the EC Treaty).

liberalization may cause the relevant markets to be very dynamic and subject to change during a Commission's infringement investigation. As a result, identifying abuses of market power may become a very difficult and ambiguous task.

6.3.3 *MANUFACTURING COMPETITIVE MARKETS BY COMPETITION RULES*

Hancher and Hautesclouque (2010) argue that the problem concerning the application of EU competition rules in electricity and gas supply is not only related to its difficult application in a complex economic sector that is currently subject to change. A major concern is that the Commission may increasingly use competition rules, and thereby the commitment procedure, to directly influence the development of a competitive market environment for electricity and gas. According to them this is problematic basically for three reasons that are worth addressing in more detail (Hancher and Hautesclouque 2010: 9):

- Ambiguity of economic analysis
- Risk of increasing legal uncertainty
- Issue of political legitimacy

Ambiguity of Economic Analysis

As already mentioned, enforcing competition rule is based on economic analysis. Given that economic analysis offers a significant scope of discretion, the remedies imposed in commitment procedures to energy companies may be questionable in terms of their impact on the energy market (Hancher and Hautesclouque 2010: 10). Measures employed by the Commission to enhance competition and reduce market concentration may in reality either be ineffective or in the worst case even be counterproductive. For example, electricity or gas release programs imposed on energy companies may in absolute terms increase the energy volume freely traded in energy markets. However, despite the fact that as an economic coefficient this may be interpreted as an improvement, the evidence of a lasting positive effect may remain unclear. In the worst case, such measures may even deter investments in new power generation capacities (Hancher and Hautesclouque 2010: 11). In other words such measures may increase investment uncertainty and, as a consequence, in the medium to long term negatively affect energy security (chapter 2.5.2). Another energy security concern related to economic analysis and the application of competition rules concerns conflicts between quantifiable short-term and non-quantifiable long-term efficiency criteria. Competition in the energy market as a short-term goal needs to be balanced with non-

economic energy security-related goals often requiring a long-term approach. Incorporating non-economic (political) goals into economic analysis poses a huge challenge (Hancher and Hautesclouque 2010: 11). In other words, economic analysis alone provides an unsatisfying tool to assess and answer non-quantifiable factors (Baldwin and Cave 2002: 77).

Risk of Increasing Legal Uncertainty

Another concern of Hancher and Hautesclouque (2010: 12) is the Commission's growing reliance on the rule of reason when applying competition rules. Rule of reason assesses the competitive behavior of energy companies with regard to their effect on long-term consumer welfare and is based on a case-by-case approach in terms of competition rule infringements (Hancher and Hautesclouque 2010: 12).³⁶ The application of rule of reason in the energy sector may undermine the predictability of competition rule enforcement and, thus, increase legal uncertainty. An unpredictable regulatory environment can lead to serious problems. It may prevent new companies from entering the energy markets and, thus, hamper the development of a competitive market environment. Given the uncertain legal environment energy companies may refrain from new investments in the energy infrastructure. As already mentioned, competitive market environments are likely to exacerbate regulatory uncertainties, and the same applies to legal uncertainties (chapter 2.5.2). In the medium to long term this may negatively affect energy security of Member States.

Issue of Political Legitimacy

According to Hancher and Hautesclouque (2010: 9), the commitment procedure may become an important tool for the EU to actively contribute to the establishment of a competitive market environment in Member States (chapter 10.1):

“The commitment procedure thus allows the Commission to bargain liberalization outcomes directly with the incumbent companies without going through the interface of NRAs [national regulatory authorities] and Member States.”

It is the commitment procedure that makes the use of competition rules become a favored instrument by which the EU, in effect the Commission, can substantially support energy

³⁶ As Herdegen (2010: 364) notes, the so-called more economic approach is increasingly guiding the Commission's understanding of competition policy. According to it, competition is aimed at ensuring specific welfare goals. EU enforcement of competition rules is in a growing number of cases driven by the expected impact that the change of behavior of certain market actors will have in terms of welfare effects.

liberalization (Hancher and Hauteclouque 2010: 13).³⁷ Compared to the ELPs the Commission does not have to wait for new energy directives to achieve structural change in electricity and gas supply. The commitment procedure allows the Commission direct access to energy companies without having to mediate its objectives through national competition authorities and energy regulators. In addition, commitment decisions do not pose the risk of being overruled by the European Court of Justice. Moreover, the Commission has a strong bargaining position during commitment negotiations as it may impose substantial fines to energy companies, of up to 10 percent of a company's total revenue. Finally, the commitment approach may allow the Commission to push for the establishment of a competitive energy market environment even if Member States oppose this process. According to Hancher and Hauteclouque (2010: 9) that in particular raises political legitimacy concerns.

Institutional Reasons for the EU's Use of Competition Rules for Market Manufacturing

The EU's the application of competition rules to create a competitive market environment, though embedded in the logic of the internal energy market, raises major concerns. According to Hancher and Hauteclouque (2009: 9), it is possible that the Commission will gradually replace the practice of unilateral commitments with energy companies by more formal decisions. However, the economic, legal and political issues related to the application of competition rules to electricity and gas supply are likely to persist for the coming years.

Why does the EU use competition rules to support the creation of a competitive market environment, in the light of the serious legal and economic concerns that it causes? It is due to the EU's institutional setup and expresses its ambition to enhance its influence with regard to establishing the internal energy market. The EU has to rely institutionally on a decentralized enforcement of its energy directives. As we will see later in the case studies (chapter 8) the EU's directives are subject to the Member States' political will to transpose and implement them. Even if the latter has been the case, the establishment of a competitive market environment and, especially, the internal energy market, require Member States in effect to go beyond merely implementing the ELPs. For the internal energy market to become reality Member States have to comply with EU energy legislation not only by the letter (by merely transposing it into national law) but also in its spirit. It means showing dedication to energy liberalization and actively supporting the establishment of a competitive energy market. The

³⁷ According to Hancher and Hauteclouque (2010: 13) companies may even be more inclined to agree on commitments simply to avoid costly fines and court proceedings as well as risking private lawsuits before national courts.

use of competition rules as a tool to fostering the development of a competitive market environment for electricity and gas supply can be understood as the EU's response to its institutional limits and a way to (autonomously) enhance its influence and effectiveness in energy market regulation (Salerno 2008).

7 EU EXPORTING ENERGY MARKET REGULATION

Discussing how the EU exported its regulation to third countries is important for this study for two reasons. First, it complements our knowledge on EU energy market regulation. With increasing energy market integration, exporting energy market regulation to neighboring third countries with which the EU has energy trade relations, such as Switzerland, Russia or Algeria may become increasingly relevant. Second, addressing the EU's influence on energy market regulation outside its territory is necessary as some of the case studies (chapter 8) have only recently, since 2004, become Member States of the EU. Thus, by discussing the general reasons for the EU to export energy market regulation (chapter 7.1) we take among others a closer look at EU influence on energy market regulation in Accession Candidates with a focus on energy liberalization (chapter 7.1.3). International trade regimes are sometimes also referred to as sources of energy liberalization. As alternative, but often overestimated, external sources of influence to energy liberalization in Member States, we take a closer look at the two most important international multilateral trade regimes: the Energy Charter Treaty (chapter 7.2.1) and the World Trade Organization (chapter 7.2.2). Those regimes are also discussed as instruments to be used by the EU for exporting energy liberalization.

7.1 REASONS FOR EXPORTING ENERGY MARKET REGULATION

Why is the EU interested in exporting its energy market regulation? One reason is the issue of economic free-riding by energy companies doing business in the EU but domiciled in non-EU countries (Johnston 1999: 11). While being protected from competition in its own domestic market, foreign companies may benefit from a competitive advantage vis-à-vis their competitors domiciled in the EU, which are exposed in their home market to market competition (and competition regulation). The EU may also be interested not only in tackling the issue of competitive advantages but also in facilitating the access for its energy companies to energy markets in third countries. In the best case based this would take place based on its own rules of the game for electricity and gas markets. In other words, the main idea driving the EU to export its energy market regulation may be the ambition to create a level playing field within and outside its territory, on which its energy companies can compete with foreign energy companies for market shares under fair terms.

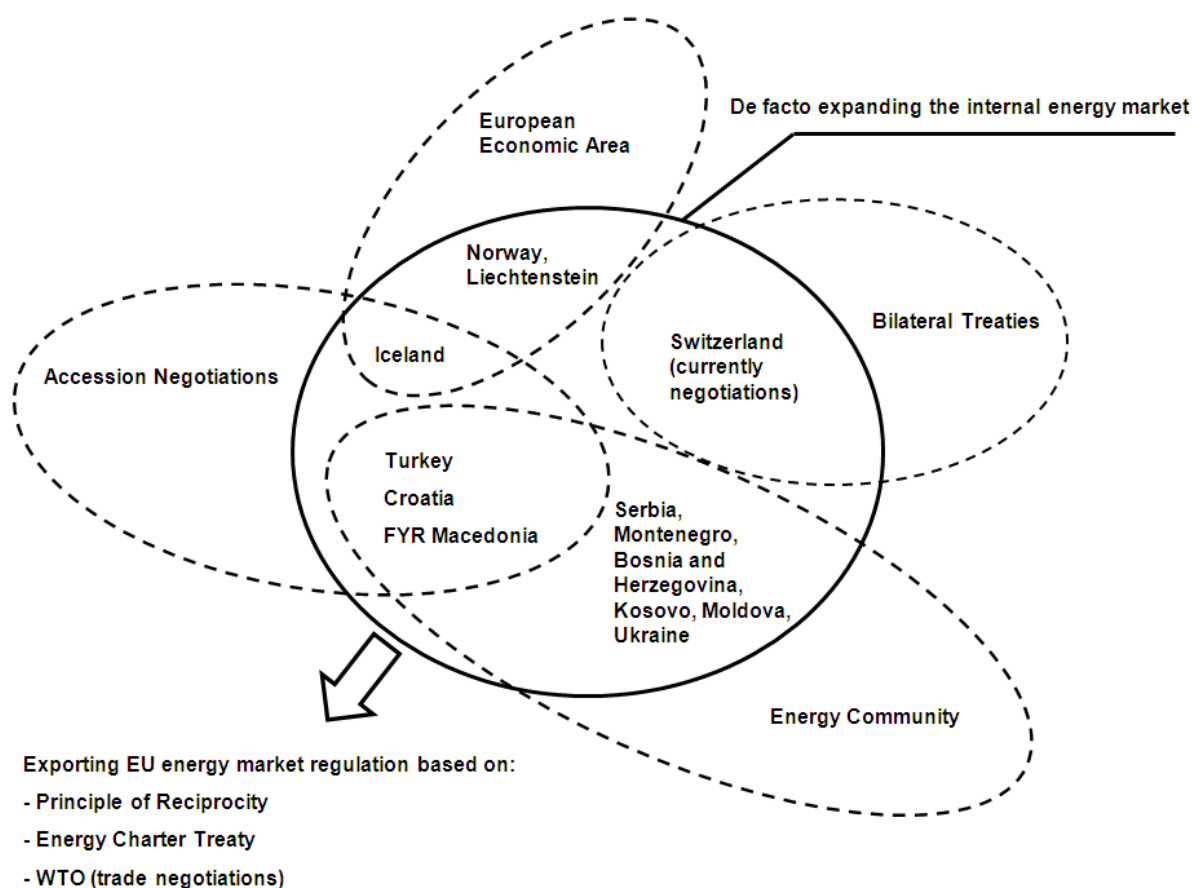
However, international common law provides no legal means by which the EU could make a third country subject to its energy legislation. This would interfere with a state's sovereignty

to independently and freely determine its economic organization—with regard to energy liberalization, the economic organization of electricity and gas supply. Thus, the EU has to look for other means to export its energy market regulation, which amounts to basically three options:

- Implicitly exporting EU energy market regulation by making access for energy companies, domiciled in third countries, to the internal energy market subject to the principle of reciprocity;
- Explicitly exporting EU energy market regulation based on bilateral international agreements with third countries;
- Explicitly exporting EU energy market regulation based on multilateral international agreements with third countries.

The following figure provides a systematic overview of the international legal means employed by the EU to export energy market regulation abroad.

Figure 5: EU Exporting Energy Market Regulation



Those existing international legal means by which the EU tries to export its energy market regulation can be expected to be soon complemented by a specific EU external energy policy. At the end of 2010, the EU started a public consultation (based on Article 194 TFEU) that is expected to feed into such an external energy policy. The EU's intentions to engage more in shaping energy market organization beyond its borders is not new. In the past the EU's policy measures (e.g. energy dialogues) have mainly been influenced by the dependency on oil and gas and involved important energy exporting countries, such as Russia and Algeria as well as transit countries (chapter 7.2.1). With the creation of a competitive internal energy market, the EU's future external energy policy may focus more on establishing a regional level playing field in the energy sector and, thus, move beyond managing external dependency risks in the context of energy security. However, establishing a level playing field may also be politically framed as a tool to enhance the latter.

7.1.1 PRINCIPLE OF RECIPROCITY

The third Energy Legislation Package (ELP) with regard to applying unbundling on companies domiciled in third countries reflects the EU's ambition to export energy market regulation based on reciprocity. While the EU is not explicitly requiring third countries to comply with EU energy market regulation, it makes access to its internal energy market for foreign electricity and gas transmission companies subject to the compliance of those companies with the unbundling requirements existing in the EU (Art. 11 Regulation 2009/72/EC and 2009/73/EC). The Commission assesses a foreign energy company intending to do business in the EU with regard to its compliance with the EU's unbundling provisions. However, acknowledging the Commission's assessment, the ultimate decision remains with the involved national energy regulator if it wants to grant access.

With that limited reciprocity approach the EU clearly avoids closing its energy market for third countries. The strategy aims in the medium to long term to get those countries to adopt similar energy legislation and, thus, sooner or later engage in energy liberalization and establish a competitive market environment (Johnston 1999: 13). The EU can be understood to foster an international political environment that is favorable to liberalization. Tangible steps may then take place either in a bilateral or multilateral legal framework (chapter 7.2.2).

7.1.2 EUROPEAN ECONOMIC AREA (EEA)

Members of the European Economic Area (EEA) do not differ from EU Member States with regard to EU influence on energy liberalization. The original intention of the EEA was to unify the economic area covering the European Free Trade Agreement (EFTA) and the economic area covered by the European Community (EC) (Herdegen 2010: 54). As a consequence, the EEA consists of EFTA countries, which are Iceland, Liechtenstein and Norway. Switzerland as an EFTA country did not join the EEA. The EEA is particular in the sense that its members participate basically only on the internal market of the EU. In terms of EU legislation, they are only subject to provisions related to the internal market. Thus, EU energy market legislation also applies to EEA countries. However, as they are not full EU Member States, EEA countries do not participate in the legislative process leading to EU energy legislation. In addition, in EU energy institutions, such as ERGEG (in the past) and ACER (today), they only have observer status with no voting rights (chapter 6.2.3). The EEA agreement is the most effective tools for the EU to export its energy market regulation beyond its territory. EEA countries are not only legally bound to comply with EU energy legislation. They are also subject to EU competition rules and infringement procedures in case of non-compliance.

7.1.3 ACCESSION NEGOTIATIONS

Accession negotiations are probably the second most effective tool for the EU to export its energy market regulation. States applying for EU membership have to adopt the so-called *Acquis Communautaire*. According to the EU's own glossary, it can be defined as:

“[...] the body of common rights and obligations which binds all the Member States along within the European Union. It is constantly evolving and comprises:

- *the content, principles and political objectives of the Treaties;*
- *the legislation adopted in application of the treaties and the case law of the Court of Justice;*
- *the declarations and resolutions adopted by the Union;*
- *measures relating to the common foreign and security policy;*
- *measures relating to justice and home affairs;*
- *international agreements concluded by the Community and those concluded by the Member States between themselves in the field of the Union's activities.*

Accessions negotiations are based on chapters. Energy is one of them. The closing of all chapters opens the way to EU accession for a country. It means that a country has to incorporate the Energy Acquis into its national legislation prior to accession. This process is monitored with so-called progress reports. On a regular basis, the Commission updates the Council of Ministers and the European Parliament on the developments of the negotiations with Accession Candidates. The reporting goes beyond simply assessing the transposition of EU legislation but also includes their implementation. Given that the progress reports play a decisive role in the accession of a country to the EU, Accession Candidates are expected to show stronger interest in adopting the Energy Acquis than Member States.

Given that Accession Candidates may be highly heterogeneous in social, economic and environmental terms, the negotiation procedure may permit a country to negotiate with the EU temporal derogations from EU energy market regulation (see Estonia chapter 8.7). However, this only delays the application of EU energy legislation. As successful accession depends on the closing of all chapters, the accession negotiation procedure displays to some extent a coercive element. This applies also to the expansion of the EU's energy market regulation and, as such energy liberalization. Concerning energy liberalization, new EU Member States were, thus, subject to EU influence as soon as they start accession negotiations. With regard to the case studies (chapter 8) it means that all countries were subject to the first ELP.

7.1.4 ENERGY COMMUNITY

The Energy Community is another instrument by which the EU exports its energy market regulation, and as such energy liberalization, beyond its territory. According to the Energy Community (Energy Community Website 2010) it:

“[...] extends the EU internal energy market to South East Europe and beyond on the ground of legally binding framework. It thereby provides a stable investment environment based on the rule of law, and ties the Contracting Parties along with the European Union. Through its actions, the Energy Community contributes to security of supply in wider [sic!] Europe.”

The Community was founded in 2006 to establish a regional energy market with a focus on South-Eastern Europe, including in particular the Balkans. In the meantime, Moldova and

Ukraine also became members. Often, the Energy Community is institutionally compared to the ECSC (see Cameron 2007: 78). *Prima facie* they share some similarities. The Energy Community may also somehow trace back its origins in post-war reconstruction. This is true as its regional focus includes Ex-Yugoslavia and, hence, brings together former enemies. However, in effect, there are more differences than similarities with the ECSC. Contrary to the ECSC, the founding members of the Energy Community (except for the EU) did not participate in the legislative process leading to EU energy market legislation that they are supposed to transpose and implement. In addition, the ECSC aimed at reducing the risk of economic market failure in two particular industries, coal and steel (chapter 5.1.1). The current EU electricity and gas market legislation—providing the core of the Energy Community—, however, aims at transforming the economic organization of energy supply in the participating countries. Finally, participation in the Energy Community seems to be less based on an economic rationale but is clearly driven by political motives, such as a future EU membership as the following table indicates.

Table 13: Countries Participating in the Energy Community

EU Accession Candidates	Prospective EU Accession Candidates	Others
Croatia	Albania	Moldova
FY Republic of Macedonia	Bosnia and Herzegovina	Ukraine (since 2010)
	Montenegro	
	Serbia	
	Kosovo (represented by the UN Interim Administration Mission)	

Note: Initially, Moldova, Ukraine, Turkey and Norway only had observer status. Source: EU (2010 Website), Energy Community (2010 Website), Cameron (2007: 78).

The Energy Community can be understood as being a preliminary stage to formal EU accession negotiations for some countries. The Treaty on the Energy Community (TEC) requires those countries to transpose and implement EU energy legislation (Art. 10–11 TEC), the EU competition rules (Art. 18–19 TEC) and EU environmental legislation (Art. 12–17 TEC) as well as legislation concerning renewable energy (Art. 20). Finally, the members of the Energy Community are expected to automatically adapt to the development of EU legislation (Art. 24–25 TEC).

Another common comparison with the ECSC concerns the institutional similarities (Cameron 2007: 78). Besides including a Council of Ministers and a Permanent High Level Group

(doing preparatory works for the Council), the Community has an Energy Community Regulatory Board. It is composed of the representatives of national energy regulators and acts as the Energy Community's Dispute Settlement Body (Art. 90–93 TEC). This institutional setup may resemble the ECSC, with its Council of Ministers and the High Authority. However, there are important differences that are worth taking a closer look at.

Contrary to the ECSC's High Authority, the Regulatory Board has no supranational authority. It only has an advisory role to the Council of Ministers (Art. 58(a) TEC). Its powers do not go beyond formulating recommendations on cross-border disputes involving regulators (Art. 58(b) TEC). With regard to a member's non-compliance with Energy Community legislation (de facto EU legislation) a similar infringement procedure takes place as in the EU. A contracting party, the Regulatory Board or the Secretariat may bring a case of non-compliance by another party to the attention of the Energy Community's Council of Ministers. If it establishes by unanimity a case of non-compliance it may impose a penalty. This may amount to the suspension of certain rights within the Community, the suspension of voting rights or the exclusion from meetings or other procedures applied in the Energy Community (Art. 92 TEC). Hence, in terms of consequences, the dispute-settlement taking place in the Energy Community does not really reflect the dispute settlement in the EU but, interestingly, much more that applied in the WTO.³⁸

Today, no legal precedents exist that would illustrate the consequences that a breach of Energy Community treaty obligations would entail. However, given the similarities of its dispute settlement procedure with that applied in the WTO, the following outcome is likely. The Energy Community's DSB would unanimously establish a legal breach by one of its members. As a consequence the DSB would decide to suspend certain rights deriving from the application of Energy Community legislation. In that context, the suspension works as a compensation for the economic damage caused by one country to one or more Energy Community members.

Comparing the Energy Community with the WTO is interesting and informative. It shows how the EU actively fosters an international environment that is favorable to energy liberalization (7.1). Although the Energy Community may work for its members as a preliminary stage to EU accession, it can also be understood as an EU strategy to spread its

³⁸ Dispute settlement in the WTO takes place in the Dispute Settlement Body (DSB), composed of the WTO member states.

energy regulation in the hope it may feed other bilateral and multilateral (energy) trade frameworks, in the medium to long term (chapter 7.2).

7.1.5 *BILATERAL ENERGY TREATIES*

With regard to states that are not EEA countries, Accession Candidates or members of the Energy Community, the EU may try to export its energy market regulation based on bilateral or multilateral energy treaties. The current negotiations between Switzerland and the EU over a bilateral agreement on energy trade provide an excellent example. The EU wants Switzerland to comply on an ongoing basis with EU energy market regulation. The EU aims at a mechanism whereby Switzerland would legally commit itself to automatically transpose and implement EU energy legislation (Tagesanzeiger 2010). If the EU succeeds with that goal, Switzerland and the EU would establish a common European energy market area in essence mirrors the EEA but limited to energy trading. Swiss energy companies and, in particular, the Swiss transmission grid operator are in support of such a treaty. This is most likely driven by two reasons.

First, the adoption of EU energy market legislation would provide for full energy liberalization. Switzerland would have to change its rules of the game in order to comply with the EU's third ELP. This concerns in particular market opening. Switzerland, contrary to the EU, did not engage in full market opening, so far. In that sense, a treaty with the EU would help Swiss energy companies to overcome domestic political resistance to energy liberalization in Switzerland. Thereby, the EU's influence on energy liberalization would work (be politically used) the same way as in most other EU Member States (chapter 9.1).

Second, Swiss energy companies may be interested in Switzerland's active participation in the EU's internal energy market for business reasons. The participation of the Swiss government and the Swiss transmission system operator in EU energy institutions, such as ACER and the ENTSOs (chapter 6.2.3), could help them to better understand and shape energy infrastructure developments in the EU. This is important if Swiss energy companies want to participate in the internal energy market and make informed investment decisions. As mentioned earlier, the EU's internal energy market may pose increasing investment risks (chapter 6.2.3). This is due to the growing competitive market environment (chapter 2.5.2), and the fact that infrastructure investments are increasingly driven by the EU and, thus, by politics. The latter may express the EU's will to actively shape the infrastructure of the internal energy market for the benefit of a competitive market environment. However, it may also be partially triggered by the lack

of private infrastructure investments experienced since the 1990s. From the perspective of Swiss energy companies, those circumstance call not only for active Swiss participation in EU decision-making, but also for better access to information to understand the dynamics of the internal energy market.

In particular, the Swiss transmission grid operator has voiced concerns that, without an energy treaty with the EU, they would not be able to participate in shaping the developments of the electricity and gas networks in Europe (Tagesanzeiger 2010). In the worst case, they see Switzerland becoming an energy network island as a result of not participating in EU energy institutions (NZZ 2011). This may be exaggerated. In the long term, given the move towards more renewable power generation in Europe, the EU's interest in having access to Swiss hydropower (for balancing purposes) will most likely be higher than vice-versa.

The question that remains is whether Switzerland will be willing to engage in full energy market liberalization in exchange for participating in the internal energy market. In that context, the bilateral treaty will be interesting in terms of economic and political gains for Switzerland necessary to outbalance the loss of maintaining an independence energy market policy. In that regard, it is unlikely that the EU will permit Switzerland to be better off than EEA countries.

In the case of other third countries, such as Russia and Algeria, bilateral agreements similar to that anticipated by the EU for Switzerland seem out of reach. If the EU is able to export energy market regulation to those countries it will most likely be based on multilateral (energy) trade agreements (chapter 7.2).

7.2 EU AND ENERGY IN MULTILATERAL TRADE REGIMES

Discussing multilateral trade regimes and their potential influence on energy liberalization is important for two reasons. International organizations, such as the World Bank or the International Monetary Fund may provide an external source of influence on energy liberalization in Member States of the EU and, as such to the countries investigated later in the case studies (chapter 8).³⁹ In addition, they are also an instrument by which the EU may export its energy market regulation, for example by influencing trade negotiation outcomes.

³⁹ Bedarff (1997) and von Hirschhausen (2002) provide interesting insights with a focus on Eastern Europe and the role of international organizations in restructuring utilities and shaping energy policy, respectively.

Analyzing the influence of international trade regimes would go beyond the scope of this study. However, it is important to address the potential role of two international trade regimes that are often referred to in the context of international energy trade:

- The Energy Charter Treaty
- The World Trade Organization

The International Energy Agency (IEA) is not discussed as its influence on energy policy is not legally binding. Furthermore, its policy focus is very limited and biased towards reducing its members' dependence on oil. Nevertheless, the IEA works to some extent as a platform for the dissemination of ideas, not at least concerning energy liberalization.

7.2.1 ENERGY CHARTER TREATY

The origins of the Energy Charter Treaty lay in the Energy Charter, a legally non-binding treaty adopted in 1991. It was adopted to facilitate energy trade relations between Western Europe and the socialist countries in Central and Eastern Europe and, especially, the Soviet Union. Some argue that the political intention was to extend the economic integration process taking place in Western Europe beyond the Iron Curtain (Axelrod 1996: 497). However, this seems as farfetched as comparing the Energy Community to the ECSC.

The adoption of the Energy Charter in 1991 was accompanied by dramatic changes to the political and economic situation of its member countries in Central and Eastern Europe. With the dissolution of the Soviet Union the purpose of the treaty changed. Western European countries pushed for a shift in approach from facilitating energy trade, towards securing energy supply from and through those increasingly politically unstable countries. On the other side, those countries had interest in securing foreign direct investments to restructure their energy sector (Axelrod 1996: 597). The result was a reworked legally binding treaty, signed in 1994, the so-called Energy Charter Treaty (ECT). However, it took four years until it entered into force. Until today 46 countries have signed and ratified the treaty. Among them belong almost all European countries. Australia, Norway, Iceland and Belarus are signatory states but have not yet ratified the treaty. In 2009, Russia, a former signatory state, expressed its intention not to ratify the treaty and become a contracting party. This resulted in the termination of the provisional application of the treaty in Russia which took place so far.

The treaty's aim was to put international energy trading on a firmer institutional basis and increase legal certainty for energy investments. Thereby, a striking feature of the ECT is its reliance on WTO principles, such as the better of national treatment principle and the most favored nation status (MFN). Given that, the treaty is sometimes referred as Energy GATT (Axelrod 1996: 2). The Energy Charter Process institutionalized the energy trade cooperation among ECT members, as it requires them to meet on a regular basis to enhance intergovernmental cooperation on technology transfer, opening financial markets and the development of competition rules. In that respect, the ECT shows similarities to the WTO's Trade Negotiation Rounds. However, with regard to one aspect the ECT even went beyond the WTO. Not only did it make energy explicitly subject to GATT rules, its dispute settlement procedure even allows private actors to sue contracting parties (in other words states) before a court of arbitration. The application of GATT rules as well as the fact that private actors are able to sue contracting parties (states) may have been one reason for Russia's decision to terminate the provisional application of the treaty.

However, concerning energy liberalization, the ECT does not go beyond merely calling upon its participants to establish a competitive market environment on their territory (Art. 6 ECT):

"Each contracting party shall work to alleviate market distortions and barriers to competition in economic activity in the energy sector."

With regard to the EU, the ECT may be understood as an early attempt to export its energy market regulation to states in Central and Eastern Europe (Axelrod 1996: 497). The treaty bears clearly the EU's signature concerning spirit of liberalizing energy trade (Cameron 2007: 86). However, that contrasts with the lack of more tangible energy liberalization prescriptions in the treaty. In that respect, the ECT's impact was extremely low. However, the ECT is unique in the international context. It is the only multilateral framework dedicated exclusively to energy trade liberalization and, therefore, commonly referred to as energy GATT.⁴⁰

7.2.2 WTO AND ENERGY

Although the WTO is often referred to as being relevant in electricity and gas trade, there is, in effect, not much evidence for that. The same is true with regard to the WTO's influence on

⁴⁰ The ECT provides a selected overview of recent cases. Among the most prominent cases, and pending since 2004, is *Yukos Universal Ltd. vs. the Russian Federation*.

energy liberalization, which does not exist at all. Dubbing the Energy Charter Treaty the “Energy GATT” (and the fact that Russia decided to leave the ECT) already hints to the rather limited role that the WTO plays in energy trade. Nevertheless, let’s have a closer look at the WTO with regard to three aspects related to energy trade:

- WTO accession of energy producers and impact on trade in fossil fuels
- Competitive energy markets in the EU and international trade in electricity
- WTO and the EU

WTO Accession of Energy Producers and Trade in Fossil Fuels

The potential accession of energy producers to the WTO, such as Algeria, Saudi Arabia or Russia, are raising questions with regard to the treatment of fossil fuel resources under the General Agreement for Tariffs and Trade (GATT). A key issue concerns dual energy pricing. It describes the phenomenon that energy-producing countries generally discriminate against external consumers compared to domestic consumers in terms of prices for oil or gas. As this behavior results in preferential pricing of those goods for the domestic market, higher export prices conflict with the better of national treatment principle. This issue is still not resolved and explains partially the absence of countries heavily endowed with fossil fuel resources in the WTO.

Competitive Energy Markets in the EU and International Trade in Electricity

The other issue that drives the discussion on energy and the WTO is related to the process of energy liberalization in the EU. The creation of an open and free internal energy market raised concerns among some EU Member States bordering Russia.⁴¹ They fear that as soon as Russia becomes a WTO member, it will use its rights under GATT to access their electricity markets and flood it with huge amounts of cheap electricity. Such a scenario causes of course energy security concerns. However, believing that the WTO accession of Russia may lead to such a scenario seems unfounded. The existing literature on the application of WTO legislation to energy is ambiguous. Some scholars believe that electricity clearly falls under GATT (WTO 1998: 3; Pierros and Nüesch 2000: 98–99; Zarrilli 2003: 38), while others are more skeptical about it (Fiebiger 2001: 7–8; Selivanova 2007: 13, 21).

⁴¹ Especially the Baltic States bordering Russia are concerned, not at least as Russia is soon supposed to become a WTO Member State.

Historically, the status of energy in GATT has never been clarified. Though the authors of GATT first incorporated energy on the draft negotiation agenda in 1947, they soon realized that it would make negotiations very difficult if not impossible. Hence, the authors of GATT avoided tackling the issue. What resulted was a gentlemen's agreement according to which energy was beyond the material scope of GATT (UNCTD 2000: 14; Gibbs 2003: 4).⁴² That energy is not a subject of GATT is further sustained by taking a closer look at regional free trade agreements making energy subject to GATT principles. In general, such agreements limit the application of GATT principles to energy trade only to the contracting parties. This is the case for example with the North American Free Trade Agreement (NAFTA). In that case, WTO members exclude other WTO members (none-contracting parties to NAFTA) of more favorable energy trading conditions. The same approach applies also to the ECT discussed previously and given its uniqueness referred to as energy GATT.

To sum up, energy is unlikely to fall explicitly under GATT or, in other words, WTO law. However, though it does not fall explicitly under GATT, it might be possible that this may be the case implicitly. That would be the case by assuming that electricity is a good and treating it as any other commodity subject to GATT.⁴³ Despite this, it is unlikely that electricity would be treated explicitly as a good subject to WTO legislation among all GATT members, given the ambiguity surrounding energy as a subject to GATT. To make such a treatment explicit would require a decision of the WTO's dispute settlement body. In other words, a unanimous decision WTO member states would be required (Selivanova (2007: 34). Given that WTO members still differ very much with regard to the public policy approach they apply to the economic organization of electricity supply, it is very unlikely that a unanimous decision could be reached.

WTO and the EU

In 1995, the EU became an official contracting party to the WTO. That meant that the EU was likely to exert influence on future developments in WTO law. Unsurprisingly, the EU became active on the issue of international energy trading and energy liberalization. In the current

⁴² This assumption is supported by the fact that ECSC countries, as members of GATT, successfully circumvented providing the same beneficial trade conditions concerning coal and steel to other GATT countries by successfully negotiating with them for a waiver (Art. 25 Sec. 5 GATT) (Streinz 2003: 9). To avoid similar problems the EAEC was established as a customs union (chapter 5.1.1). This highlights that energy was a very difficult subject to treat in the context of international trade regimes.

⁴³ In effect, the authors of GATT in the late 1940s decided not to classify electricity as a commodity (WTO 1998: 2, Evans 2002: 40). The reason was probably less the outcome of economic or scientific reasoning than the practical fact that electricity trading was a non-issue at that time, at least not in international trade.

WTO trade negotiation round—the Doha Round—the EU issued a proposal concerning the liberalization of trade in energy services on the national level.⁴⁴ In addition to that, the EU can be understood as actively fostering the wider acceptance of its energy market regulation in the WTO. This is the case by partially relying on the principle of reciprocity when granting market access to energy companies from third countries (chapter 7.1.1) as well as by spreading its energy market regulation through multilateral (chapter 7.1.4) and bilateral energy trade agreements (chapter 7.1.5).

⁴⁴ See the collective requests in which the EU is participating under the Doha Development Agenda (DDA) Trade in Services negotiations.

8 ENERGY LIBERALIZATION IN THE BALTIC SEA REGION

In the previous chapters we have investigated the EU's expansion into electricity and gas market regulation (chapters 5 and 6) and the means by which the EU tried and tries to export it abroad (chapter 7). While based on those insights we could assume that the EU plays a role in shaping energy market regulation in Member States and to some degree abroad, in effect, the mere existence of EU energy market regulation tells us nothing about its real effect on the national level. However, this forms a prerequisite, especially, to answering the second part of the research question guiding this study (chapter 1.1): *How did the EU gain influence on energy liberalization in Member States and which factors determined its scope?*

The purpose of this chapter is to shed light on the influence of the EU on energy liberalization by investigating the influence of EU electricity and gas market regulation in the Baltic Sea Region. In the focus are the EU's Energy Legislation Packages (chapter 6.1) and their influence on energy liberalization in seven Member States: Germany, Sweden, Finland, Poland, Lithuania, Latvia and Estonia. In other words, in this chapter we investigate the EU's role in changing the rules of the game for electricity and gas supply (chapter 6.2) on the national level. The investigation is guided by the basic analytical framework established previously in this study (chapter 4). Based on a discussion of the political economy of electricity and gas supply (chapter 2) we formulated theoretical propositions (4.2) according to which modifying factors are expected to determine the EU's influence on the national level on energy liberalization (chapter 3.4). Those factors are the existence of economic and political justifications for liberalization in a country and its energy security situation.

The individual case studies center on electricity liberalization and only briefly address gas liberalization. The latter has been in most countries less controversial and drew less political attention than electricity liberalization. Finally, in the context of energy liberalization the empirical focus is on the EU's influence on a country's first decisive steps and clear political commitment regarding electricity and gas liberalization (chapter 4.3) This directs our attention to the EU's contribution to changing national public policy approaches applied to the economic organization of electricity and gas supply in a country (chapter 2.3.3).

8.1 GERMANY

8.1.1 *CHANGING THE RULES OF THE GAME IN ELECTRICITY SUPPLY IN GERMANY*

In 1993, Germany considered energy liberalization. The German government suggested changes to the Energy Industry Act, which aimed at establishing a competitive market environment for electricity (Mez 1997: 250). The proposed changes involved organizational unbundling and TPA. Except for the federal government, moving towards a competitive market environment was not welcomed in the rest of Germany (Mez 1997: 250). Political resistance came from the state (Länder) governments and the social democrats. The states along with the municipalities opposed changes to the existing market regulation as they would have lost an important source of income (Mez 1997: 242). In strict political terms, opposition came not only from the social democrats but also from conservative policymakers. In addition, the energy industry also opposed any change to existing regulatory frameworks by pointing to the responsibility they have to carry in terms of ensuring energy security and, not at the least, in supporting the domestic coal industry by buying up coal for power production (IEA 1994: 252). The reaction of the federal government was first to drop unbundling and significantly reduce the scope of TPA in its proposition for amending the Energy Industry Act. However, by 1994, it decided to completely stop its attempt to amend the Energy Industry Act (Mez 1997: 250). However, it did not mean that the government changed its mind with regard to energy liberalization. The government simply opted for an alternative and seemingly more efficient solution. The government decided to wait for EU prescribed energy legislation, which then would facilitate carrying out energy liberalization in Germany (Mez 1997: 250). A few years later, in 1996 and 1998, the EU adopted its first Energy Legislation Package (ELP). Unsurprisingly, the government transposed and implemented the related energy legislation into national law very fast. It adopted amendments to the Energy Industry Act a year later in 1997, which entered into force in 1998 (Prizsche 2005: 146). For electricity supply it led to organizational unbundling and negotiated TPA as well as full market opening (Mez 2003: 223; Prizsche 2005: 142, 154). With the quick adoption of the first ELP, Germany transposed EU legislation one year ahead of the official deadline.

The EU's second ELP was transposed into national legislation (Energy Industry Act) in 2005, which introduced legal unbundling as well as regulated TPA (GFMEL 2005: 3). Full market opening had already been provided for since 1998, which made incorporating the ELP's schedule for market opening by 2005 and 2007 unnecessary. However, by 2005, Germany

was clearly late with the transposition of the second ELP, a fact that was also noticed by the Commission (RAPID 2005). How could this happen? Did it display unwillingness by Germany to carry out energy liberalization, as some have argued? The reason was more complex and less obvious. The fact that Germany in 1998 opted for negotiated TPA resulted in domestic legal obstacles that hindered a quick transposition of the second ELP (GFMEI 2005: 3). The federal government had to wait with amending the national legislation. In effect, the last TPA negotiation round underway during that time, involving energy sector and industry stakeholders, had to break down first (GFMEI 2005: 3). Only that opened the way to amending the Energy Industry Act in order to transpose EU energy legislation. Some argued that Germany's choice for negotiated TPA may have been related to a general reluctance to carry out energy liberalization, in anticipation that regulated TPA would slow down the creation of a competitive market.

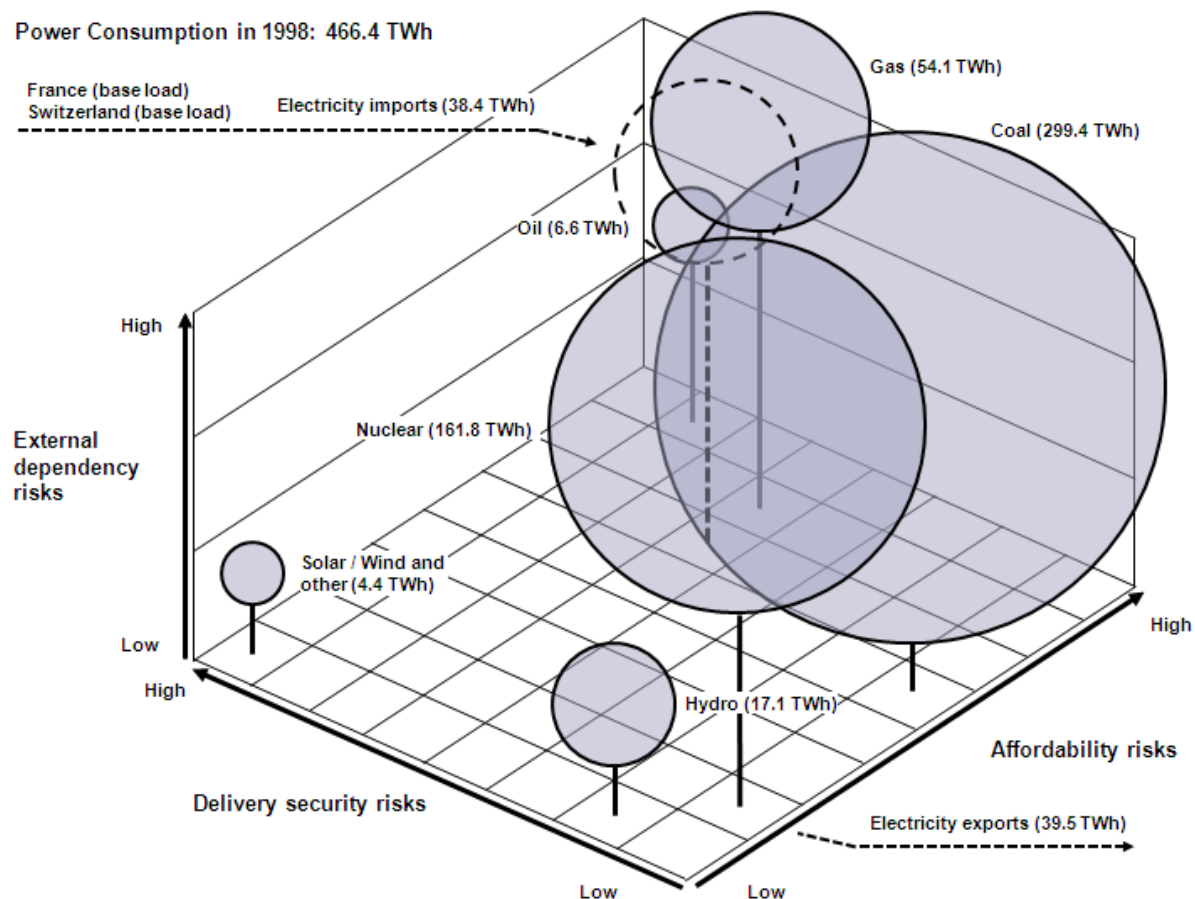
The reason for opting for negotiated TPA is not that obvious. One can argue and say that negotiated TPA was institutionally the most feasible option available for the German government in 1998. However, the problem was that the federal government shared governance and regulation over the energy sector with the Länder (Mez 2003: 223). This limited the regulatory scope of the federal government and made opting for regulated TPA difficult as it would have required a federal regulatory agency in charge of approving the regulated TPA fees and conditions. Thus, the transposition of the second ELP did not only trigger amendments to the Energy Industry Act in 2005 but led to changes—some would say clarifications—of regulatory competences between the federal and state governments. The tangible outcome was an energy regulator on the federal level—the Federal Network Agency (GFMEI 2005: 4). Although Germany was on an infringement list of the Commission with regard to the second ELP until 2009 (see RAPID 2005, RAPID 2009), it could not be interpreted as significant German resistance to liberalization of electricity supply. In bold terms, by 2005, Germany had changed the rules of the game in a way that displayed a clear commitment to a competitive market environment for electricity supply.

8.1.2 ROLE OF ENERGY SECURITY, ECONOMIC AND POLITICAL JUSTIFICATIONS

Electricity liberalization in Germany can be explained by a favorable energy security situation, which also gave rise to economic and political justifications. Those factors influenced the German government to move towards a competitive market environment in

electricity supply. The following figure is exemplary for Germany's power supply situation in the 1990s.

Figure 6: Power Supply Situation for Germany in 1998



Note: See Annex I for details on visualization of power supply situation and Annex II table 1 for relevant figures.

In energy security terms, Germany's power supply situation in 1998, which is not significantly different from the beginning of the 1990s, did not provide major concerns. In particular, the bulk of Germany's electricity supply presented a favorable risk exposure. While coal is depicted in the figure as presenting some affordability risks, this was in effect not really the case as Germany basically relied on domestic coal reserves. Countries importing coal would clearly be exposed to price fluctuations. Nevertheless, German coal was at that time more expensive than coal bought on the world market. Although electricity imports and exports seemingly offset, Germany acted de facto as an electricity exporter mainly to the Netherlands, Austria and Switzerland (IEA 1998: 95). However, benefiting from mutual supply advantages, Germany imported electricity in particular from France and Switzerland,

thus satisfying eight percent of its base load consumption in 1998. The considerable share of gas in power generation is partially explained by the fact that Germany has a history of gas consumption based on domestic but declining gas reserves. However, in 1998, Germany was a net importer of gas with Russia a key supplier.

Economic Justifications for Liberalization

The low energy security risks allowed the German Deregulation Commission to conclude in the early 1990s that the German electricity industry should not be exempt from competition anymore (Mez 1997: 247). Following the classic argumentations advanced in general for liberalization, the Commission expected competition to put pressure on electricity prices, which were considered to be too high at that time (Mez 1997: 248). However, it is important to note that the high electricity prices were not simply the result of economic inefficiencies but basically the result of a public support scheme for the domestic coal industry (IEA 1991: 213). As a result, the high costs for coal extraction in Germany translated into high electricity prices for consumers.

Political Justifications for Liberalization

Economic arguments clearly influenced the political justifications for energy liberalization. However, the latter were also driven by a new understanding of the role that public institutions should play in economic activities. One argument in favor of energy liberalization was directed at the active role that the municipalities played in energy supply. They were seen as part of the problem related to economic inefficiencies (Mez 1997: 242). The fact that they benefited from concession tariffs meant that they had an interest in increasing energy consumption. Hence, the German Deregulation Commission concluded that the system of concession worked to the detriment of economic efficiency in power supply. The introduction of a competitive market environment for electricity supply was likely to put an end to the exclusive supply agreements between municipalities and energy companies. Politically, probably the most important driving factor behind energy liberalization was the intention to find a way out of the expensive support regime provided to the domestic coal industry. Put simply, the German government at that time was not seeking economic efficiency gains but a way out of its contribution to the domestic coal industry (IEA 1991: 243).

8.1.3 *ROLE OF THE EU IN ELECTRICITY LIBERALIZATION IN GERMANY*

From a historical point of view, we can conclude that the EU played a role in Germany's electricity liberalization. The EU's function was to help the German federal government to overcome domestic resistance in political and institutional terms. The federal government used the transposition of EU energy legislation as a way of reshaping the regulatory responsibilities between itself and the Länder as the introduction of regulated TPA illustrates. However, we cannot conclude that energy liberalization would not have taken place in the absence of the EU. Apparently, the social democrats changed their earlier opposition and became supporters of energy liberalization (some would say neoliberal policies in general) by the end of the 1990s.

With regard to the energy security situation as well as the economic and political justification, they obviously worked in favor of energy liberalization. As those factors influenced the position of the German government with regard to energy liberalization they facilitated EU influence. We can argue that the German government in the 1990s welcomed EU influence not only in overcoming domestic opposition but also because it genuinely believed that electricity liberalization was economically justified.

8.1.4 *GAS LIBERALIZATION IN GERMANY AND THE ROLE OF THE EU*

Although Germany fully opened its gas market in 1998, the government was less eager to engage in gas liberalization compared to the electricity industry. This was exemplified by the fact that Germany clearly lagged behind the transposition and implementation of the first ELP. For example, negotiated TPA found its way into German energy legislation explicitly only in 2003 (Prizsche 2005: 154). This happened only to quickly become history as the transposition of the second ELP required not only legal unbundling, but also the establishment of regulated TPA, which took place in 2005 (GFMEL 2005: 3).

One can conclude that contrary to electricity liberalization, Germany—and this also applies to the German government at that time—did not particularly support gas liberalization as much as was the case with electricity. The reasons may be related to energy security concerns given that Germany was a net importer of gas. Economic justifications were also less easy to provide compared to electricity, which clearly lowered the prospect for political support. We can conclude that in the case of gas it was most likely the EU that pushed for liberalization in Germany. In the absence of the EU it is unlikely that the rules of the game in gas supply would have changed significantly towards providing a competitive market environment.

8.2 SWEDEN

8.2.1 *CHANGING THE RULES OF THE GAME IN ELECTRICITY SUPPLY IN SWEDEN*

Energy liberalization in Sweden is usually dated to the adoption of the amendments of the Electricity Act in 1996 and 1998 (Hjalmarsson 2001: 483). They introduced negotiated TPA and provided the basis for the gradual opening of the electricity market. By 1999, some technical restrictions concerning metering were removed leading to a de facto full market opening (IEA 2000b: 78). However, Sweden in effect started even earlier with liberalization. In 1992, Sweden legally unbundled the transmission network. Except for unbundling, Sweden seems to reflect or even to anticipate the EU's first ELP. By the time the first ELP was adopted, Sweden had already complied with its content.

At this initial stage of energy liberalization, Sweden and Germany seem to share clear similarities. Both countries show an eagerness to engage in energy liberalization. They even seem to have opted for the same regulatory approaches. Both countries introduced negotiated TPA and opted for full market opening at a very early stage. However, they differ in one aspect—unbundling. Is it possible that the fact that Sweden opted for legal unbundling as compared to Germany—which opted for organizational unbundling—be evidence for a difference in the willingness to engage in energy liberalization between those countries? Compared to organization unbundling, legal unbundling is a much more far-reaching measure in regulating for competition and, specifically, in reducing the potential for a vertically integrated power company owning the transmission network to discriminate against competitors with regard to grid access. Given that, can we conclude that Germany was less willing to liberalize?

Once more a closer look at the situation is revealing. Since Sweden owned the major electricity company in Sweden, Vattenfall, it was rather easy to basically order legal unbundling. The result was a spin-off of the high-voltage transmission network into a newly founded state-owned company—Svenska Kraftnät (Middtun 1997). The situation in Germany was completely different. The electricity market was splintered (the same is true for gas). The market reflected the demarcation and concession contracts between the municipalities and the energy companies (IEA 1995: 252). In addition, those companies were not owned by the federal state. The ability of the federal government to interfere in the legal setup of those companies was clearly reduced and any such attempts were likely to trigger constitutional

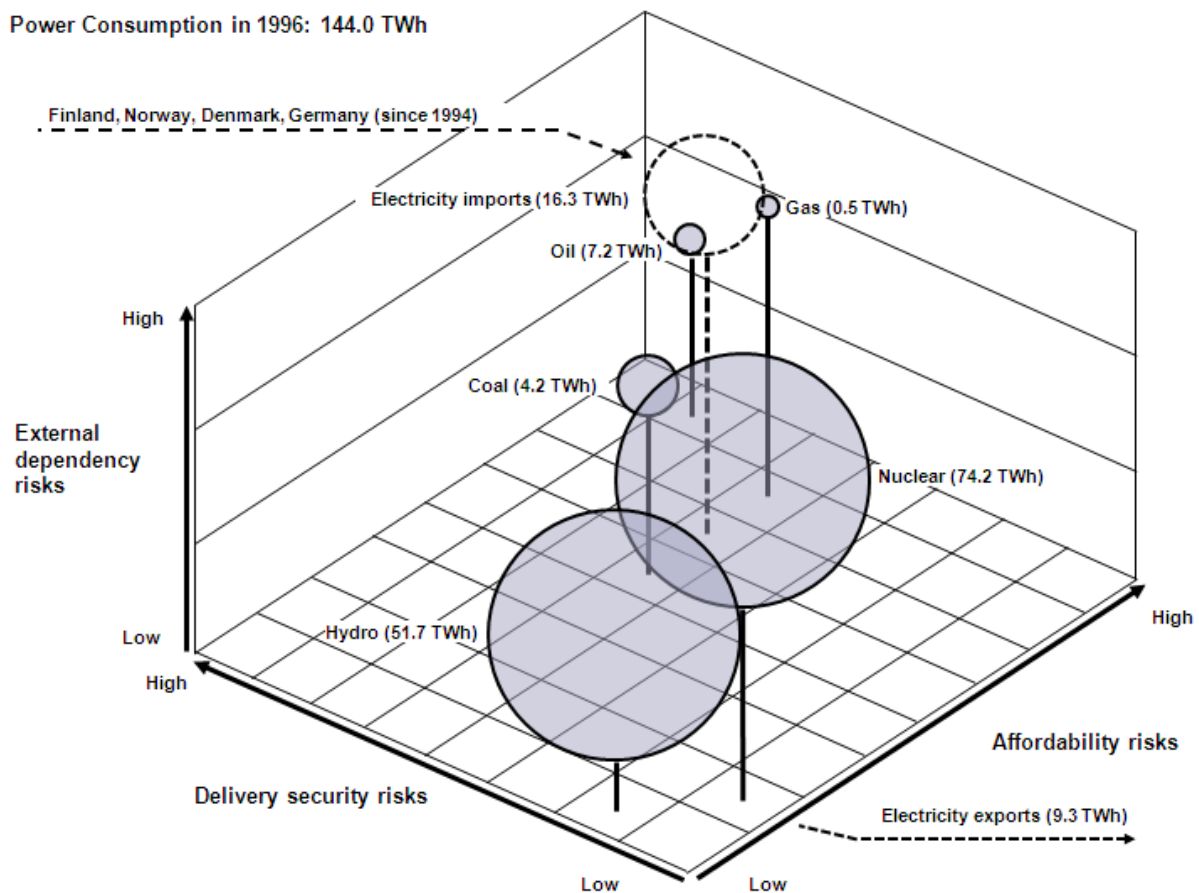
lawsuits against the government. Hence, Sweden simply benefited from the persistent ownership structure in its electricity industry, where it owned the key player.

Although an early mover in terms of energy liberalization, Sweden also became, similarly to Germany, subject to infringement procedures for a failure to transpose EU energy legislation. This concerned the second ELP, whereby the Commission in 2006 criticized, in particular, insufficient legal unbundling. Compared to other Member States, Sweden shows one interesting exception. It managed to secure regulated TPA until 2012, which is an exemption from full application of the second and third ELPs (SEMI 2009: 10). Nevertheless, we can conclude that Sweden by the end of the 1990s displayed a clear commitment to a competitive market environment for electricity supply.

8.2.2 ROLE OF ENERGY SECURITY, ECONOMIC AND POLITICAL JUSTIFICATIONS

Similarly to Germany, electricity liberalization in Sweden can be explained by a favorable energy security situation, which also gave rise to economic and political justifications persuading the Swedish government to move towards a competitive market environment in electricity supply. However, as we will see, in addition to the usual liberalization arguments other economic and political justifications seem to have played a role as well for Sweden's decision to move to liberalize electricity supply. The following figure is exemplary for Sweden's power supply situation in the 1990s.

Figure 7: Power Supply Situation for Sweden in 1996



Note: See Annex I for details on visualization of power supply situation and Annex II table 2 for relevant figures.

Similarly to Germany, in energy security terms, Sweden's power supply situation in 1996 did not provide major concerns. In particular, the bulk of Sweden's electricity supply presented a favorable risk exposure. While a significant amount of electricity was imported in 1996, the risk exposure might be slightly too emphasized in the figure as the counterparties were very reliable and with which Sweden had an almost century-long electricity trade relationship (in the case of the Nordic countries). Although in the case of electricity imports and exports the figures do not offset, suggesting that Sweden was a net importer of power, that is usually not the case. 1996 was an exceptionally dry year with low precipitation, which negatively affected Sweden's hydropower capacity. Sweden is generally a net exporter of electricity. In 1998, Sweden imported 6 TWh and exported 16.9 TWh basically to its Nordic neighbors: Finland, Norway and Denmark. The connection to Germany since 1996 is basically used only for electricity exports, which amounted to 2.2 TWh in 1998. The low dependency on fossil fuels is remarkable in Sweden's power supply. Gas and oil are almost negligible. On the other

hand, Sweden relies heavily on nuclear power, which, in 1996, contributed about 50 percent to domestic consumption.

Economic Justifications for Liberalization

Similarly to Germany, the comfortable energy security situation with regard to power supply seemed to have influenced the Swedish government with its plan to engage in energy liberalization. In 1991, the Swedish government then in power proposed shifting towards a competitive market environment for electricity supply (Middtun 1997: 109). The fact that the subsequent conservative government published a white paper with the title “*An Electricity Market with Competition*” clearly shows a wide consensus among Swedish policymakers to head for electricity liberalization. Classic energy liberalization expectations were advanced as arguments, such as efficiency gains, lower energy prices and enhanced energy services (Middtun 1997: 1009).

Political Justifications for Liberalization

Obviously, the economic arguments that fed into the political justification for energy liberalization display an increasing trust in competitive markets and market regulation. However, in the case of Sweden two other factors seem to have supported liberalization on the political level as well. On the one hand, the expectation that liberalization would increase Sweden’s economic competitiveness seems particularly important. Sweden’s economic situation in the early 1990s was extremely problematic. The country experienced a deep economic crisis (IEA 1994: 422). GDP declined by almost two percent in 1992 and three percent the next year. In 1993, the state deficit reached 15 percent. In this context, electricity liberalization became part of a far-reaching economic reform package (Middtun 1997: 109). On the other hand, in the aftermath of the nuclear catastrophe in Chernobyl, Sweden decided to close down its nuclear reactors by 2010 (IEA 1988: 399). As that decision was not repealed during the 1990s, the Swedish government faced the challenge of somehow finding an alternative to those power generation capacities soon to be lost (IEA 1994: 421). Liberalization seemed an appropriate means to addressing that issue as (at least according to theory) a competitive market environment was expected to trigger new investments.⁴⁵ However, in the short term, another factor was probably even more decisive in that respect—

⁴⁵ Interestingly, if this was the case, the outcome so far did not support that expectation. In effect, Sweden did not phase out of nuclear power by 2010. Instead, it extended the lifetime of its nuclear power plants until today.

the prospect of participating in a Nordic power market along with Norway, Finland and Denmark. A common electricity market based on the principle of open and free trade basically called for the establishment of a competitive market environment in the participating countries and, thus, in Sweden.

The Nordic power market further institutionalized electricity trading relations that already existed between Sweden and the remaining Nordic countries. In political-institutional terms, the Nordic energy market was developed and supported by the Nordic Council of Ministers, an intergovernmental body established in 1971 to facilitate economic and political cooperation among the Nordic countries (NORDEN Website 2011).⁴⁶ In tangible terms, a common power market was expected to provide for efficiency gains as the participating countries could benefit of the complementarity of their electricity generation systems. While Finland and Denmark were usually seeking a way to satisfying peak load demand, Norway and Sweden were traditionally concerned with ensuring sufficient base load during the year (Hjalmarsson 2001: 495). The latter was to become especially important if Sweden stuck to its plan to phase out nuclear energy by 2010.

8.2.3 ROLE OF THE EU IN ELECTRICITY LIBERALIZATION IN SWEDEN

From a historical point of view we can conclude that the EU played a minor role at the beginning of Sweden's electricity liberalization. The EU was not necessary to overcome domestic political resistance, and it did not, at least for the first ELP, call for more far-reaching changes to the rules of the game. Even in the absence of the EU, Sweden would most likely have liberalized its electricity supply.

The energy security situation as well as the classic economic and political justification for liberalization seemed to have clearly laid the basis for electricity liberalization in Sweden. Additionally, Sweden genuinely seems to have believed in the virtues of electricity liberalization. However, other important political factors have contributed as well. On the one hand, the economic crisis may have provided the opportunity to engage in liberalization as a part of comprehensive economic reforms. On the other hand, the potential power generation

⁴⁶ According to the Nordic Council of Ministers (NCM) the Nordic electricity market has become a role model for the EU's ambitions to complete the internal energy market (Norden Website 2011). In terms of market integration the fact that the internationally most advanced regional electricity market was and still is sustained by an intergovernmental organization is interesting. In 2002, NordREG was established, which serves as a cooperation body for Nordic national energy regulators. Its counterpart on the EU level, ACER, was established in 2010. On the political level, the NCM's Electricity Market Group follows up on political initiatives concerning the Nordic power market.

gap due to the phase-out of nuclear energy may have also provided the incentives to liberalize as well as the prospect of participating in the common Nordic power market. However, given that in 1991 Sweden already thought about energy liberalization it seems that even in the absence of a few of those addition factors, the country most likely would have engaged in energy liberalization.

8.2.4 GAS LIBERALIZATION IN SWEDEN AND THE ROLE OF THE EU

Liberalization of gas supply started in Sweden by adopting the newly created Natural Gas Act (IEA 2002b: 218). It introduced organizational unbundling and regulated TPA. In addition, it gradually opened the gas market to consumers—first to those with an annual consumption of more than 25 m³ in 2000, and later, in 2003, to 15 m³ as well as making CHP producers qualified to access the open market (IEA 2004: 83). In order to transpose and implement the second ELP of the EU, the Natural Gas Act was amended in 2005, thereby introducing legal unbundling and the roadmap set by the EU for market opening, by which the Swedish gas market would be fully opened by 2007.

However, the Swedish gas market remained too small for any meaningful competition. This is not surprising. Sweden's gas market is dominated by two companies—Swedegas and E.ON Gas Sverige, which both import gas through Denmark to Sweden (IEA 2008: 66). The prospect for more competition was further dampened as construction for a planned new gas connection was put on hold due to commercial risks. In that sense Sweden lacked clear economic justifications for gas liberalization, at least in the domestic Swedish context. It seems unlikely that Sweden, a country that was a forerunner in electricity liberalization, would not have applied that approach had it been deemed economically beneficial. Similarly to Germany, we can conclude that with regard to gas supply a shift towards a competitive market environment would most likely not have taken place in the absence of the EU. In other words, gas liberalization seems to have been clearly driven by the EU.

8.3 FINLAND

8.3.1 CHANGING THE RULES OF THE GAME IN ELECTRICITY SUPPLY IN FINLAND

Finland's energy liberalization formally started with the adoption of the newly created Electricity Market Act, which came into force in 1995 (Eerola and Oksanen 2001: 169). It

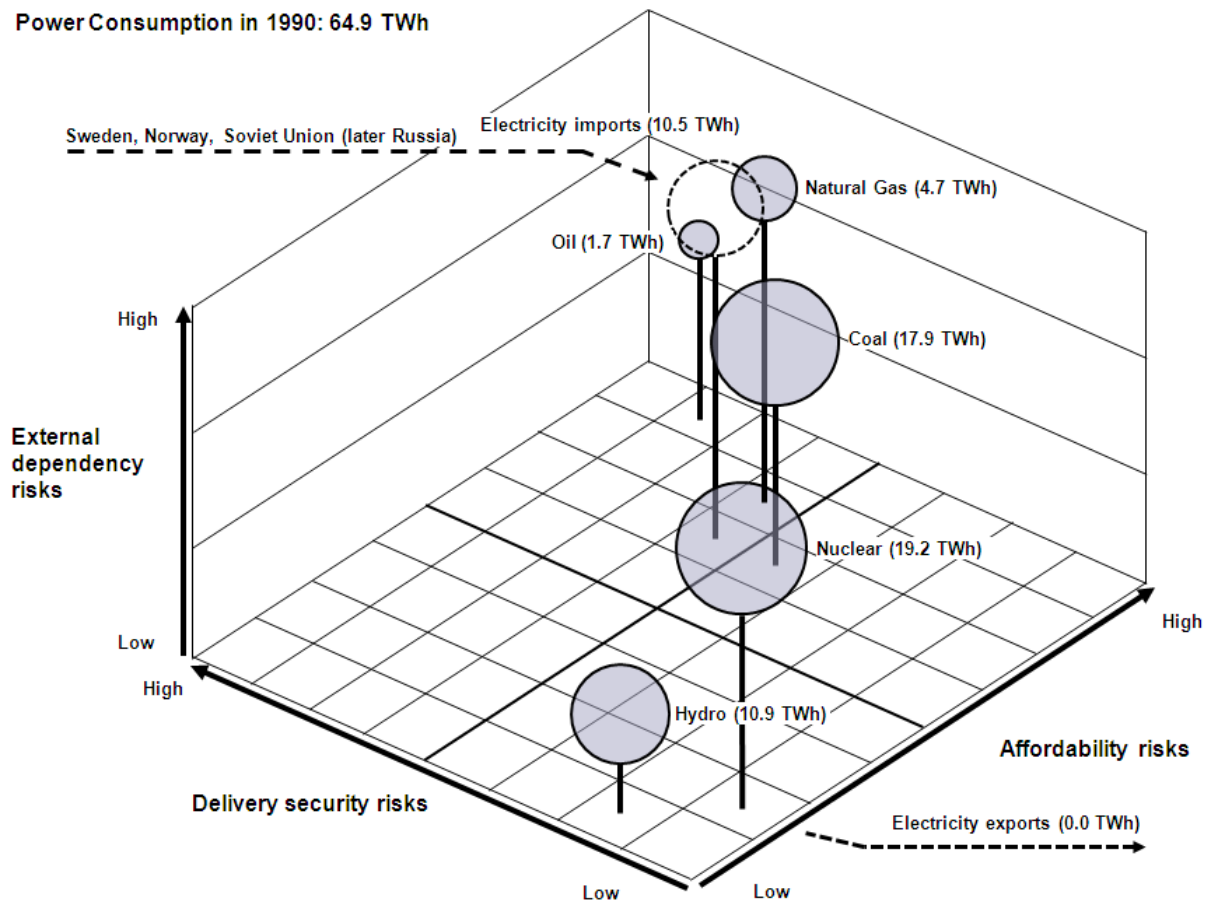
introduced organizational unbundling for Finnish electricity companies and negotiated TPA concerning grid access (Middtun 1997: 104, 105). With regard to the latter, Finland did not differ from Sweden and Germany. The legislation simply stated that TPA tariffs should not discriminate between similar customers and that they should be reasonable and based on objective criteria (Eerola and Oksanen 2001: 185; Hjalmarsson 2001: 501). In order to ensure this, Finland similarly to Sweden appointed an energy regulator for TPA rate supervision. Finland opted for a gradual market opening, which, eventually, led to full market opening in 1998 (Middtun 1997: 105; IEA 1999: 75). EU energy legislation played a role only from 2003 on, when Finland had to transpose the second ELP to its national legislation. However, the changes with regard to the rules of the game were minor. They basically concerned a shift from negotiated to regulated TPA (IEA 2007: 90).

In one aspect Finland's electricity liberalization raises a question—why did it opt for organizational unbundling and not for a more far-reaching approach as its neighbor Sweden had done? Does it indicate that Finland was possibly less eager to liberalize electricity supply? The Finnish case in terms of unbundling is similar to Germany. It had a fractured electricity market, which was, however, less complex than the German one. The challenge faced by Finland was to integrate two domestic electricity grids (IEA 1994: 201). They belonged to two different companies. While Imatran Voima was state-owned, Pohjolan Voima was owned by Finland's energy intensive industry (IEA 1995: 2000; IEA 1999: 65). Nevertheless, Finland managed in 1997 to merge both grids into one legal entity and, thereby, created Fingrid, Finland's national transmission system operator (IEA 1999: 80; Karkkainen and Lakerveri 2001: 194). Hence, without explicitly introducing legal unbundling, Finland managed to create a transmission system operator that basically fulfilled the requirement of being legally unbundled (IEA 1999: 30). That clearly points to Finland's ambition to establish a competitive market environment and willingness to carry out electricity liberalization much earlier than the EU had called for.

8.3.2 *ROLE OF ENERGY SECURITY, ECONOMIC AND POLITICAL JUSTIFICATIONS*

Contrary to Germany and Sweden, Finland's energy liberalization seems not to have been favored by a particular secure power supply situation. In effect, energy security concerns loomed high on the political agenda when Finland was thinking about electricity liberalization, as a discussion of Finland's power supply situation in 1990—which is exemplary for the first half of the 1990s—reveals.

Figure 8: Power Supply Situation for Finland in 1990



Note: See Annex I for details on visualization of power supply situation and Annex II table 3 for relevant figures.

In energy security terms, Finland's power supply situation in 1990 was only at first glance a comfortable one. Overall, we can say that Finland benefited from a rather favorable price base for power supply. Although coal shows considerable affordability risks, this was only the case with regard to the volatility of the international coal price. In absolute terms, coal was a comparatively cheap energy resource for power production, which was surely the case in 1990 not at the least due to the absence of CO₂ emissions costs. In addition, electricity imports from the Soviet Union were also very favorable in terms of price (IEA 1995: 194).

However, those power imports became a major concern at the end of the 1980s and especially as the Soviet Union dissolved. During that time Finland's power dependency on the Soviet Union became a clear burden and tangible risk. However, even if delivery interruptions had not occurred for the time being, it was clear that by the year 2000, those favorable energy contracts with the Soviet Union would expire (IEA 1994: 216). In addition, Finland expected the shutdown of its older nuclear power plants as they reached the end of their lifetime. Given

that the parliament decided (similarly to Sweden) not to increase the country's nuclear power base, Finland had to find a solution to satisfy its growing electricity demand (IEA 1994: 216).⁴⁷ Finland's energy demand was still in a transformation phase, mainly from consuming primary fuels for electricity, making the increase in power supply capacities an unavoidable need (IEA 1994: 216). However, Finland's situation was not easy as most of its large domestic power capacities were exploited, such as hydro (IEA 1994: 219).

Economic Justifications for Liberalization

Despite the difficult energy security situation it is surprising that Finland opted for liberalizing its electricity supply. However, similarly to Sweden, liberalization was clearly supported by the major political parties. The original proposal for energy market reforms was done by a social-democratic government in 1992, which was later put into practice by a center party and conservative led government in 1995 (Middtun 1997: 110). The energy market reform was clearly inspired by a belief in the benefits of a competitive market environment for electricity supply.

Political Justifications for Liberalization

Similarly to Sweden, Finland's shift towards a competitive market environment took place in the middle of a deep economic crisis. The dissolution of the Soviet Union in 1991 and, thus, the loss of a key trading partner brought Finland into a serious economic recession leading to a decline in GDP of 12 percent from 1990 to 1993 (IEA 1995: 194). Thus, energy liberalization was also understood as part of an economic recovery program to revive the Finnish economy and, similarly to Sweden, to increase Finland's economic competitiveness.

Another political justification was the need to address the energy security concerns that Finland faced at that time. Liberalization was expected to increase efficiency in Finland's electricity production (IEA 1995: 201). However, this would not have solved the country's imminent power capacity issues that it faced. At the end, similarly to Sweden, the participation in the establishment of the Nordic power market seems to have mostly contributed to the political justification for Finland to engage in electricity liberalization. By becoming part of a common electricity market Finland expect to enhance its energy security

⁴⁷ Similarly to Sweden, the phase-out or shutdown of nuclear power plants in Finland did not take place. Instead, Finland is today one of the countries in Europe expanding its nuclear power capacity base.

situation with regard to power supply. If it has not been the main driving factor behind Finland's liberalization, it has at least politically supported the country's move towards a more competitive market environment for electricity supply.

8.3.3 ROLE OF THE EU IN ELECTRICITY LIBERALIZATION IN FINLAND

From a historical point of view, we can conclude that the EU played no role at the beginning of electricity liberalization in Finland. Neither was the EU necessary in overcoming domestic political resistance, nor did it, at least with the first ELP, call for more far-reaching changes to the rules of the game. We can say that even in absence of the EU, Finland would most likely have liberalized its electricity market.

While Finland seems to genuinely have believed in the virtues of electricity liberalization, the energy security situation would, in a strict sense, not have provided for a favorable basis according to the economic and political justifications established for liberalization. Hence, such a radical change in the regulatory approach to electricity supply organization is truly astonishing. Such a step required huge trust in the ability of market regulation to prevent market failure, and in the case of Finland it meant providing a market environment that would guarantee investments in new power supply capacities.

However, it seems likely that additional political factors may have provided necessary additional arguments for Finland to engage in electricity liberalization—despite its critical energy security situation. The fact that energy liberalization was framed in a wider economic recovery program surely may have helped to secure the public support. Finally, the Nordic power market, given its tangible contribution to Finland's energy security, may have provided the decisive rationale for shifting towards a competitive market environment for electricity supply.

8.3.4 GAS LIBERALIZATION IN FINLAND AND THE ROLE OF THE EU

Interestingly, gas supply in Finland was de facto unregulated until the year 2000, which means that there was now specific legislation. This situation changed when the Natural Gas Market Act entered into force (IEA 2003: 72). The adoption of explicit gas legislation reflected Finland's compliance with the EU's first ELP (IEA 1999: 58). The new rules provided regulated TPA for energy companies to access the gas grid. However, when it came to the second ELP, Finland successfully opted for derogation, justifying it with its small and isolated gas market. That Finland opted for derogation was not surprising.

In the early 1990s, the Finnish government explored already the possibility of gas liberalization and the establishment of a competitive gas market, in the context of increasingly diversifying its gas imports (IEA 1995: 199). However, the government concluded at that time that any attempts to move towards a more competitive market environment might increase the gas price and work to the detriment of consumers (IEA 1995: 199). This was due to the fact that Finland relied only on one gas provider, Russia's Gazprom, which for obvious reasons would have dominated any competitive gas market in Finland as a supplier. As a consequence, economic and political justifications simply did not apply to the liberalization of gas supply in Finland. Eventually, political support was too low, if not nonexistent, to deliberately move towards a competitive gas market in the 1990s.

Nevertheless, Finland established a small and limited secondary gas market. It allows consumers with an annual consumption of more than 5 m³ of gas to satisfy their demand (IEA 2007: 79). That gas market reflects one percent of Finland's entire gas consumption. As of today, Finland still relies basically on one supplier, which is Gasum, a company that was established in 1993, when the Finnish government was considering gas liberalization and revoked Neste's monopoly over gas imports and distribution.⁴⁸

The Finnish case of gas liberalization is interesting with regard to one aspect. It illustrates that for gas liberalization to be successful a diversified supply base seems to be necessary. In parallel to contemplating gas liberalization in the early 1990s, the Finnish government supported the establishment of a gas pipeline connecting the Finnish gas market with gas-producers in Norway (IEA 1995: 199). However, the pipeline project was abandoned for commercial risks. They were due to the low domestic Finnish gas consumption and uncertainties with regard to Sweden's future course concerning nuclear power (IEA 1995: 199). As the pipeline project was abandoned, so was Finland's interests in gas liberalization. Today, plans are underway to connect Finland with Estonia by a gas pipeline crossing the Baltic Sea—the so-called Baltic Interconnector. While the countries would remain dependent on basically one gas source—Russia's Gazprom—in the long term, the idea of a Finnish pipeline connection to Norway may be revived, given the wider market that it would serve including the Latvian gas market.

With regard to gas liberalization in Finland, we can conclude that it was clearly driven by the EU. It is unlikely that Finland would have adopted the Natural Gas Market Act in the absence

⁴⁸ Gasum is owned 25 percent by Gazprom. Shortly after its establishment the company secured a gas supply contract with Gazprom for the next 20 years, lasting until 2014 (IEA 1995: 198).

of EU pressure. Furthermore, the Finnish case illustrates the important role that infrastructure plays with regard to facilitating energy liberalization.

8.4 POLAND

8.4.1 *CHANGING THE RULES OF THE GAME IN ELECTRICITY SUPPLY IN POLAND*

Poland's electricity liberalization has its roots in the early 1990s. Although governmental support for liberalization existed at that time, the establishment of a competitive market environment for power supply took much longer (Falecki 2008: 5). Some argue that Poland's electricity supply system would have allowed for a competitive market environment in the 1990s, given the existence of quasi-independent power producers and the relatively well developed electricity network (Von Hirschhausen 2002: 186). However, in reality, the Polish electricity industry was simply not ready for competition for institutional, technical and economic reasons.

At the beginning of the 1990s, electricity supply was performed by a state-owned organization that was not only in charge of power supply but also of coal mining (Radzka 2006: 1). Prices were set by the Polish government, which highlights the importance that was assigned to the affordability of electricity for consumers (Radzka 2006: 6). Any immediate shift in the economic organization of electricity supply would have triggered significant price increases. In this regard, the political costs related to energy liberalization were simply too high (Von Hirschhausen 2002: 186). On the other hand, issues hampering Poland's early ambition to move towards a more competitive market environment were related to its economic past. As a former planned economy, the electricity sector needed huge investments to upgrade its neglected and outdated infrastructure. Hence, prior to energy liberalization a restructuring of the Polish electricity industry—and the energy sector in general—was unavoidable.

First of all, the state organization overseeing electricity and coal supply was dismantled. This led to an organizational separation of the electricity and coal industry. Electricity supply was basically transferred into a separate and newly created company called Polskie Sieci Energetyczne S.A. (PSE) (Radzka 2006: 1).⁴⁹ It was followed by corporatization and the

⁴⁹ Interestingly, this was not necessary with regard to the gas industry, as a separate state-owned monopoly had already existed since the early 1980s—Polskie Gornictwo Naftowe i Gazownictwo S.A (PGNiG) (PGNiG Website 2011). In this respect, PGNiG shares a similar history with Gazprom.

introduction of market-based management and accounting. As a result, by the end of the 1990s, Poland had established a monopolistic and state-owned electricity company. Does that indicate that Poland's plans to establish a competitive market environment somehow vanished during the 1990s?

A closer look reveals that the approach applied by Poland to the economic organization of its electricity supply system conformed to some degree with the EU's first ELP—in this case the Electricity Directive adopted in 1996. In effect, PSE acted as a single buyer in Poland's electricity supply system, whereby Polish electricity producers were to sell their electricity to PSE, which would supply end consumers (Nowak 2009: 162). With this market setup Poland partially complied with the EU's first ELP, which at that time allowed a single-buyer approach. For the Polish government this approach still had the advantages of price control. In effect, electricity supply remained subject to legislation dating back to 1984 (Radzka 2006: 7).

Formally, the first clear step towards energy liberalization took place in 1997, when Poland adopted its new Energy Law (Radzka 2006: 11). In the following years, it was subject to various amendments until 2003, in essence, to comply with EU energy legislation, given Poland's ambitions to become a Member State of the EU. While the new law introduced organization unbundling and the electricity market was gradually opened to consumers, clear and decisive steps towards establishing a competitive market environment took place only in 2003, on the eve of Poland's EU accession. At that point, Poland extended in particular market opening and achieved an opening of more than 50 percent by 2004 (Radzka 2006: 12). The same year, Poland introduced legal unbundling, which required PSE to spin off its electricity transmission business, leading to the establishment of Poland's national electricity transmission company PSE-Operator.

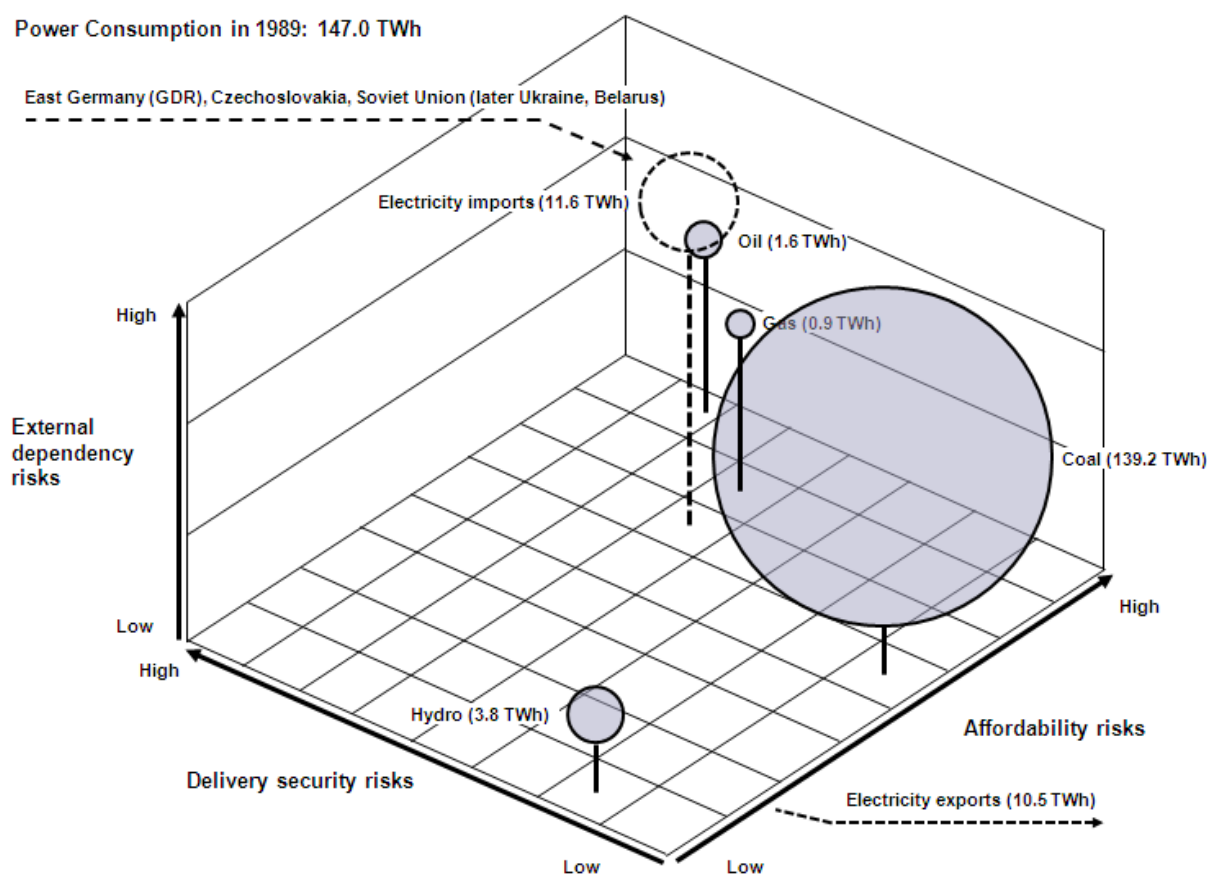
For Poland, 2003 means a clear move towards a competitive market environment for electricity supply. However, changing the rules of the game alone would not be sufficient to create competition. Electricity supply was still based on the single-buyer approach with PSE exerting a de facto monopolistic position in the power market. In 2006, the Polish government decided to engage in restructuring its electricity industry (Nowak 2009: 153). It could do so as the Polish electricity companies had not been subject to privatization so far. This process meant a clear break with the single-buyer approach and fundamentally changed the structure of the Polish electricity supply system. The result was the creation of four large energy companies (Nowak 2009: 153): Polska Grupa Energetyczna (PGE), Tauron Polska Energia, ENERGA and ENEA.

Along with Poland's compliance with the second ELP, which introduced legal unbundling and a clear roadmap towards full market opening by 2007, that particular step by the Polish government could be understood as providing the basis for the development of a competitive market environment in Polish electricity supply in the years to follow.

8.4.2 ROLE OF ENERGY SECURITY, ECONOMIC AND POLITICAL JUSTIFICATIONS

Similarly to Germany, Sweden and Finland, Poland was also interested quite early in moving towards a competitive market environment. This is not surprising, as earlier mentioned some observers of the Polish electricity supply situation in the 1990s argued in favor of such a step. A closer look at Poland's power supply situation in 1989, which did not substantially change until today, supports that argument from an energy security perspective.

Figure 9: Power Supply Situation for Poland in 1989



Note: See Annex I for details on visualization of power supply situation and Annex II table 4 for relevant figures.

In terms of energy security, at first glance Poland's electricity supply situation in 1989 seems quite comfortable. At first glance, affordability risks seem considerable with regard to coal. However, the fact that electricity and coal production were part of one organization unit significantly reduced that risk exposure in reality. In addition, external dependency was not an issue at all, given that Poland's power generation was almost exclusively based on domestic coal. However, that picture is deceptive. It does not account for the structural and technical problems that Poland's electricity industry faced in 1989. Energy security issues emanated from the inside of Poland's power industry. In the worst case, despite domestic energy resources, such as coal and gas, without addressing the outdated and neglected electricity infrastructure, Poland might have faced the risk of becoming increasingly dependent on electricity imports—needless to say that this called for a thorough restructuring of the Polish electricity industry.

Economic Justifications for Liberalization

The deplorable situation of Poland's electricity supply system in the early 1990s clearly called for economic reforms. The early ambition for energy liberalization can be understood in this context. However, the classic economic justifications for energy liberalization simply did not apply. Any attempt to establish a competitive market environment for electricity supply in Poland first faced the task of economically and institutionally reforming the electricity supply system. Only after such far-reaching reforms would economic justifications apply, benefiting of course of Poland's power market size.

However, energy liberalization in Poland may not only have been driven by the belief that a competitive electricity market would be superior to monopolistic markets in terms of economic efficiency. Energy liberalization was also likely driven by the need to attract investments into the Polish electricity industry. This leads us to the political justifications for energy liberalization.

Political Justifications for Liberalization

Evidence supporting the argument that energy liberalization in Poland was also driven by the need to attract investments to the domestic electricity industry is provided by the fact that in 1997, the year Poland adopted its new Energy Law, the Polish government showed ambitions to engage in privatization of the electricity industry (Nowak 2009: 164). However, the

subsequent governments showed less interest in privatization until 2002, when a clear privatization policy was adopted (Radzka 2006: 2). That policy shows another interesting factor that possibly determined Poland's energy liberalization process. The goal of that policy was to consolidate the Polish electricity industry in a way that would create entities that would be strong enough to compete with other large European energy companies in the EU's internal energy market. This goal seemed to have been reached by 2008, as the government decided to list its second largest electricity company, ENEA, on the Warsaw Stock Exchange, which was followed by another one, PGE, one year later, in 2009.

8.4.3 ROLE OF THE EU IN ELECTRICITY LIBERALIZATION IN POLAND

What was the role of the EU in Poland's electricity liberalization? With regard to the first phase of Poland's liberalization history, the role of the EU and the first ELP is unclear. The establishment of PSE as a single buyer to some extent complied with EU energy legislation, and may show Poland's ambition as an Accession Candidate to transpose and comply with the EU's first ELP. However, it may also have been a quasi-logical step in Poland's restructuring of its power industry. The early ambitions of Poland with regard to energy liberalization would clearly speak in favor of that understanding. In other words, not the EU but Poland seems to have been driving energy liberalization during the 1990s. However, from a historical point of view, EU influence seems more obvious in a second phase. This is indicated by the timing of major liberalization steps in 2003 and 2004, such as the introduction of legal unbundling and TPA. That seems to be driven by Poland's accession to the EU and the need to comply with EU energy legislation. In retrospect, we can argue that EU influence on energy liberalization was facilitated after 2000 due to Poland's ambitions to join the EU but also because Poland then genuinely believed in the economic justifications for establishing a competitive market environment.

However, electricity liberalization in Poland was also subject to additional political goals. It is possible that besides the classic economic justifications for liberalization, the expectation that a competitive market would attract investments into the Polish electricity industry may have contributed to Poland's willingness to engage in energy liberalization.

8.4.4 GAS LIBERALIZATION IN POLAND AND THE ROLE OF THE EU

Contrary to the electricity industry, there was no need to restructure the gas supply industry. Since the early 1980s it had been subject to a separate state-owned monopoly company, called Polskie Górnictwo Naftowe i Gazownictwo S.A (PGNiG) (PGNiG Website 2011). Although the changes to Polish energy legislation, in particular the transposition and implementation of the EU's second ELP affected the Polish gas industry, among others by establishing the independent transmission system operator Gaz-System, not much changed. Until today, PGNiG remains in a dominant position in the Polish gas market by controlling 98 percent of gas trading (PERO 2009: 78).

Similarly to the electricity industry, the government applied the same strategy to raise new funds, which with regard to PGNiG resulted in a partial initial public offering in 2005. It was done to increase PGNiG's financial capacities for new investments. Any true interest in establishing a competitive market environment by Poland would have required tackling the monopolistic position of PGNiG. That this did not take place so far indicates that gas liberalization does not seem to be a top priority of Poland. In that sense, the country does not differ from the previous cases.

We can conclude that any gas liberalization steps taken by Poland have been driven by the EU. It is unlikely that Poland would have engaged in establishing a competitive market environment in the absence of the EU. The case of Poland, gas and electricity liberalization illustrate the important role that the structure of the energy sector plays for a country to engage in energy liberalization (a fact already established in the Finnish case). However, in that context, it would be wrong to reduce changes to the structure of the energy sector, as in the case of breaking up PSE in 2006, to a mere regulatory act for the benefit of competition. It seems to have been a political act as well, illustrated by the fact that the Polish government did not take the same decision with regard to PGNiG in the gas market.

8.5 LITHUANIA

8.5.1 CHANGING THE RULES OF THE GAME IN ELECTRICITY SUPPLY IN LITHUANIA

Lithuania's electricity liberalization started with the adoption of the Law on Electricity in the year 2000 (LNCCPE 2005: 3). Its implementation took place in 2002, introducing organization unbundling as well as regulated TPA to electricity supply (LNCCPE 2005: 2).

After Lithuania's accession to the EU, the Law on Electricity was amended in 2004 to transpose the second ELP, which was supposed to provide a clear roadmap for energy liberalization in Lithuania. Despite obvious compliance with EU energy legislation, there was a gap between transposition and implementation, which the Commission noticed in 2006 and, eventually, opened an infringement procedure against Lithuania. It mentioned, among the most important issues, a delay of entry into force of legal unbundling and a discriminatory system with regard to TPA (RAPID 2006). There was obviously rather low interest in Lithuania not only with regard to transposition but also implementation of EU energy legislation. This was already apparent with regard to the Law on Electricity, which took two years, after its adoption, to be implemented. This indicates that policymakers in Lithuania, at that time, seemed not to have been particularly eager to engage in electricity liberalization.

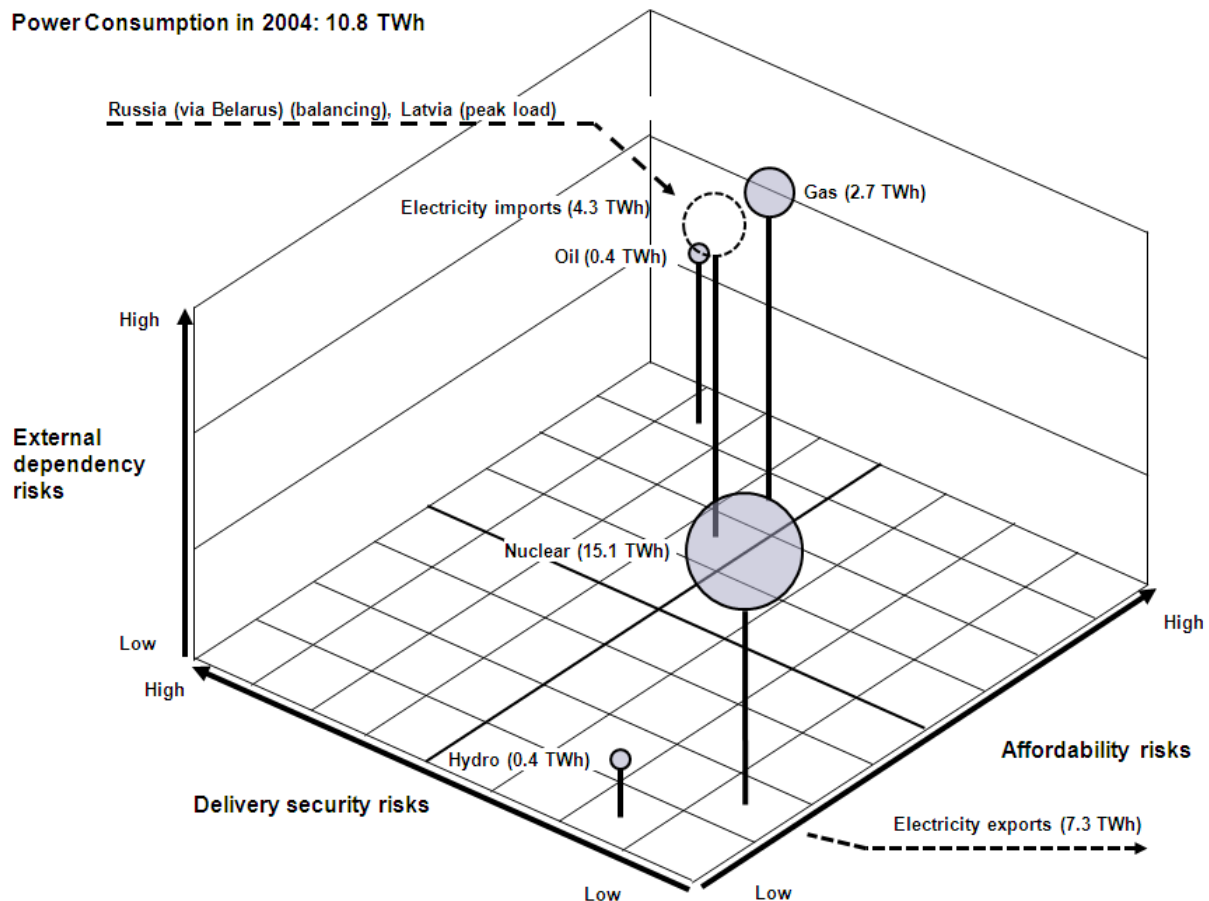
The situation changed in 2009 with regard to the third ELP. What followed was a very quick and thorough transposition and implementation of EU energy legislation. The Law on Electricity was amended in 2010. In terms of unbundling Lithuania went beyond legal unbundling, the minimal requirement stipulated in the third ELP, but imposed on electricity companies to engage in ownership unbundling concerning their transmission business. The same year, Lithuania established a market place for electricity trading, the so-called BaltPool (LNCCPE 2010: 5). It is based on the principles employed by the Nordic power market, NordPool. This clearly highlights Lithuania's ambitions today for electricity liberalization and the establishment of a competitive market environment in electricity supply. How can this sudden willingness to engage in energy liberalization be reconciled with the previous lagging in implementation of related EU energy legislation? To understand this it is necessary to take a closer look at Lithuania's power supply situation in the past and today.

8.5.2 *ROLE OF ENERGY SECURITY, ECONOMIC AND POLITICAL JUSTIFICATIONS*

Lithuania's power supply situation is substantially different from those encountered in previous case studies. That applies to the Baltic States in general. This has to do with their particularly small electricity markets, which, of course, reflect their small populations. Among them, Lithuania has the highest population, with 3.3 m inhabitants in 2008, compared to 2.2 m in Latvia and 1.3 m in Estonia. Together, they have slightly more than Finland, with 5.3 m, but clearly less than Germany, with 82.1 m, or Poland, with 38.1 m. This already indicates that in terms of market size it may be very difficult to make a case for establishing a

competitive market environment in those countries. This is illustrated by the following figure, which shows the power supply situation of Lithuania in 2004.

Figure 10: Power Supply Situation for Lithuania in 2004



Note: See Annex I for details on visualization of power supply situation and Annex II table 5a for relevant figures.

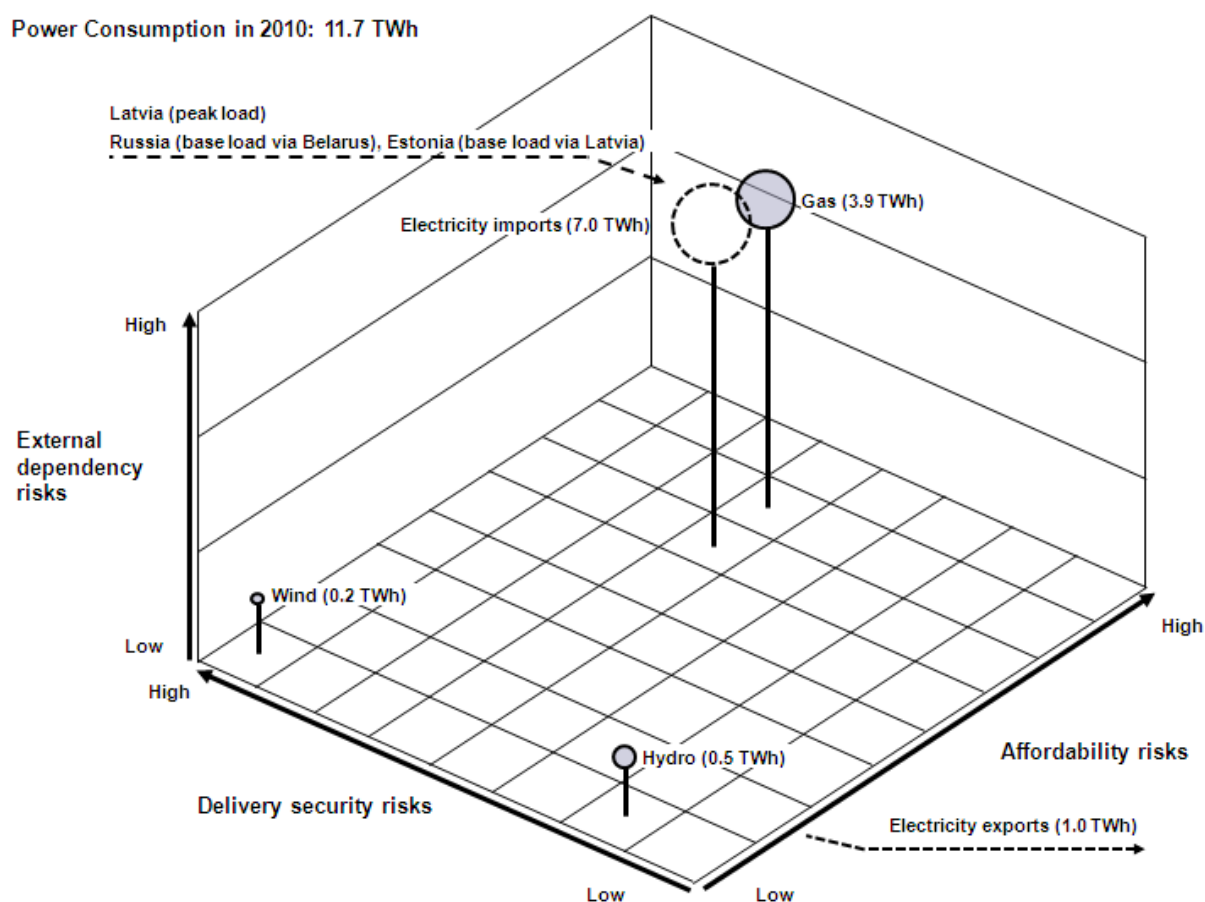
From an energy security point of view, Lithuania in 2004 was in a very comfortable situation. Not only was it due to its reliance on nuclear power, which is generally a favorable source of power in energy security terms, but in particular as it inherited it from the Soviet times. Thus, capital costs were already depreciated, permitting power production at very low costs. Speaking of nuclear power, we speak of one particular nuclear power plant (NPP), the Ignalina NPP. That power plant had permitted Lithuania to act as a net exporter of electricity since the dissolution of the Soviet Union in 1991. In 2004, the Ignalina NPP produced 6.6 TWh for domestic consumption (mainly covering the base load) and 7.3 TWh for exports (LNCCPE 2005, Annex 4). In terms of exports, the majority—53 percent—went to the Russian Kaliningrad region and 35 percent to Belarus. The exports were carried out by

Lithuania's largest power company, Lietuvos Energija, which de facto held a monopolistic position in the domestic electricity market in 2004.

Under such favorable circumstances to convince policymakers to engage in fundamental restructuring of electricity supply by the creation of a competitive market environment seemed to be a very difficult task for obvious reasons. In addition, focusing only on the Lithuanian electricity market, with one power plant producing 50 percent more electricity than the country consumed, the classic economic and political justifications for energy liberalization were rather unconvincing. This explains why Lithuanian policymakers may not have been so eager despite mandatory compliance with EU energy legislation to actively support its implementation. Given that the existing system seemingly performed well, in the sense, that it provided cheap and reliable electricity, the political support for energy liberalization in Lithuania was rather low at that time (Interview LME 2011).

Lithuania's willingness to engage in electricity liberalization coincides with the third ELP. The reason for that was that in December 2009 Lithuania's electricity supply situation fundamentally changed. This had its reasons in Lithuania's accession negotiations with the EU a decade ago. In 1999, Lithuania agreed with the EU to close down the Ignalina NPP. The power units of similar kind to the reactors used in Chernobyl. Hence, the EU insisted on Lithuania's commitment to shut down the power station as a condition for EU accession. This took place in two steps. In December 2004, the year of Lithuania's EU accession, the first power unit was shut down. Five years later, in December 2009, the second unit followed with the mentioned considerable impact on Lithuania's power supply situation. Literally, from one day to the other, Lithuania became a net importer of electricity. That radical change is illustrated in the following figure.

Figure 11: Power Supply Situation for Lithuania in 2010



Note: See Annex I for details on visualization of power supply situation and Annex II table 5b for relevant figures.

With the shutdown of the Ignalina NPP, Lithuania became extremely dependent on external power supplies. Interestingly, the closure of Ignalina's first power unit did not lead to any investments into alternative sources of electricity but led simply to a huge increase in power output of the second unit by almost 70 percent over the period of 2004 to 2006.⁵⁰ Unsurprisingly, the shutdown of the second unit had far-reaching consequences. Two years later, by January 2011, Lithuania was importing around 60 percent of its electricity from Russia and Estonia (Interview LME 2011). As the figure shows the energy security risk exposure of Lithuania with regard to power supply became extremely worrisome. Lithuania's policymakers came under pressure to find a solution to address that situation.

One solution was to invest in a new power plant to close the supply gap. Currently, the Lithuanian government supports the construction of a new power plant, which should come

⁵⁰ Calculated based on IAEA power production data for the Ignalina NPP.

online by 2018/2020 (LME 2010). A complementary solution was to diversify Lithuania's external electricity imports. Lithuania's grid is part of the so-called Unified Power System and, hence, is connected only to its Baltic neighbors, Belarus and the Russian Kaliningrad region. In that context, any meaningful diversification would have required connecting Lithuania to the grid of other EU Member States in Scandinavia or to Poland. Part of a solution, in addition to planning new investments, would have required establishing a clear energy strategy to ensure that Lithuania's dependency on comparatively cheap electricity imports from Russia (to fill the electricity gap after 2009) would not undermine investments in Lithuania's own energy sector.⁵¹

The final solution to Lithuania's energy security concerns was partially provided by the Baltic Energy Market Interconnection Plan (BEMIP).⁵² The BEMIP is a program supporting the development of the EU's internal energy market. Politically and financially supported by the EU, it is directed at establishing a common electricity market in the Baltic Sea Region. Lithuania benefits from the BEMIP as it provides a time schedule for investment in energy infrastructure, in particular in the Baltic States. According to the BEMIP new transmission lines are planned between Lithuanian and Poland (1000 MW) as well as Sweden (700 MW) by 2016 (COM 2009). Besides helping Lithuania to diversify its electricity import, the BEMIP provides the reason why Lithuania shows, since 2009, a clear determination to engage in energy liberalization. The prospect of participating in a larger regional electricity market benefits the economic and political justifications for energy liberalization in Lithuania.

Economic Justifications for Liberalization

Obviously, the size of the Lithuanian electricity market would not have provided sufficient justification for establishing a competitive market environment. On the one hand, this was due to the de facto monopolistic position that Lithuania's main power supplier, Lietuvos Energija, had in the past along with the Ignalina NPP. With the prospect of becoming part of a regional power market, the establishment of a competitive market environment for electricity supply in Lithuania becomes much more justifiable. In this context, the economic justification for

⁵¹ This is an important concern for the Lithuanian government. Currently, a NPP is being built in Kaliningrad that may likely be used for power exports to Lithuania as it becomes operational by 2016–2018 (Interview LME 2011). The NPP is the first public-private partnership in Russia. It involves the Italian energy company ENEL and Russia's electricity company INTER RAO UES. Both companies agreed in 2010 to jointly develop the project.

⁵² The BEMIP benefited from the circumstance that it was established in the aftermath of the global financial crisis. Parts of the funds employed to support infrastructure investments are derived from the EU's crisis recovery program.

Lithuania to commit itself to energy liberalization can clearly be understood as a result of the BEMIP. It has also clearly influenced the political justifications for energy liberalization in Lithuania.

Political Justifications for Liberalization

The shutdown of the Ignalina NPP and the structural change that it caused to Lithuania's power supply provided the basis for the country to engage in energy liberalization. It has forced the Lithuanian government and policymakers to search for a solution to tackle the new energy security situation. Under those circumstances, energy liberalization has clearly benefited from the fact that Lithuania's solution to its energy security concerns is seen in closer integration into the EU's internal energy market. However, in the end this was only made possible by the BEMIP, which sustains integration through political and financial means.

Another factor has politically benefited energy liberalization in Lithuania, which can be referred to as political-institutional changes. In anticipation of the upcoming energy security challenges, the Lithuanian government established in 2009 a Ministry of Energy. In the past, energy policymaking could be characterized as following a rather bureaucratic approach prone to capture by particular (energy) interest groups (Interview LME 2011). In particular, the fact that governance was exerted through parliament made a coherent approach to energy policy a rather difficult task. Hence, one of the first actions of the newly created Ministry of Energy was to establish a national energy strategy that would provide guidance for developing the Lithuanian energy sector in the medium to long term. Therefore, creating a competitive market environment and engaging in regional market integration are important elements of the strategy.

8.5.3 ROLE OF THE EU IN ELECTRICITY LIBERALIZATION IN LITHUANIA

Finally, what was the role of the EU in Lithuania's electricity liberalization? We can conclude that the EU clearly influenced Lithuania in terms of changing the rules of the game in electricity supply. However, this does not mean that the EU's influence contributed tangibly to the creation of a competitive market environment, at least not until the shutdown of the Ignalina NPP. The Lithuanian case, similarly to Poland, highlights the role that structural obstacles play when it comes to creating a working competitive market environment.

However, the shutdown of the nuclear power plant was one factor opening the way to energy liberalization in Lithuania. The other factor was the BEMIP. Without it, it seems unlikely that Lithuania would have shown the same willingness to engage in establishing a competitive market environment as it does today. In the case of Lithuania, the EU influenced energy liberalization not so much through energy legislation but especially by altering the supply structure (negotiating the shutdown of the Ignalina NPP) and by supporting the establishment of a regional energy market. EU energy legislation mattered in the sense that it helped the government to overcome domestic political resistance in order to advance energy liberalization or in other words its energy strategy.

Would Lithuania have liberalized electricity supply in absence of the EU? With regard to electricity there were ambitions among the Baltic States for establishing a common Baltic power market, dating back to 1998 (Jankauskas 2006). Back then the Baltic States expressed a political commitment to develop a common power market. That commitment was further emphasized by a political resolution signed in 2001 and a memorandum signed in 2002 by the energy regulators of the three Baltic States. Given that key discussion points were barriers to electricity trade and the issue of market distortion, it seems less likely that any cooperation would have gone beyond facilitating trade relationships. The market would have covered more inhabitants than Finland. However, the scope for a truly competitive market would still have been limited assuming no changes in the power generation structure of the participating countries. One reason to believe that is that the Baltic States were complementary in electricity supply—an inheritance from the Soviet times. Each country served a particular load capacity: Lithuania and Estonia base load and Latvia peak load. However, this started to change in recent years with the decommissioning of the Ignalina NPP. Given the anticipated changes in the Estonian electricity supply, the Baltic electricity market can be expected to become much more dynamic in the coming years.

8.5.4 GAS LIBERALIZATION IN LITHUANIA AND THE ROLE OF THE EU

In the same year that Lithuania adopted its new Law on Electricity, the country also adopted its Law on Natural Gas (LNCCPE 2005: 3). That new legislation was implemented faster compared to the electricity legislation. The implementation of the Law on Natural Gas took place in 2001 (LNCCPE 2005: 2). It called for organizational unbundling in gas supply and introduced regulated TPA. The legislation also provided for market opening. This was contrasted by Lithuania's comparatively reluctant compliance with the EU's second ELP in

2007. It stipulated full market opening to be established for the same year. Given the monopoly situation on the Lithuanian gas market, prices for gas remained regulated. However, the late transposition and the remaining regulated prices did not matter as in effect Lithuania benefited similarly to Finland from a derogation of the second ELP, given its small and isolated gas market.

Interestingly, this changed in 2011, when not only the third ELP was transposed and implemented but the Lithuanian government opted for the most far-reaching measures with regard to unbundling. While it could have introduced just legal unbundling with regard to the transmission network, it decided to make gas companies subject to ownership unbundling (The Baltic Course 2011). This currently affects Lietuvos Dujos, the de facto monopolistic gas supplier in Lithuania, of which E.ON and Gazprom are the majority shareholders. In particular, Gazprom has protested in a public statement regarding Lithuania's decision as it means that Lietuvos Dujos has to completely cede control over its gas transmission business.

Of course, one can interpret Lithuania's action as a way to ensure that the risk of discrimination in relation to TPA is minimized. However, given Lithuania's dependency on one gas supplier, Russia (in effect facing the same situation as Finland), opting for ownership unbundling can also be seen in the light of political and economic interests. Lithuania's energy strategy provides the answer. It is not only about delivery security and affordability alone—it aims to tackle external dependency and in particular to change capital flows related to Lithuania's energy supply (LME 2010). With regard to the gas market a reduction of Gazprom's market share in favor of other (domestic) gas suppliers seems to be the ultimate goal in the medium to long term.⁵³

Concerning the role of the EU in gas liberalization we can conclude that its influence seems to have been mixed. Although Lithuania complied somehow with the first, second and third ELPs, the practice was characterized by a mix of delayed transposition, partial derogation and sudden application of EU energy legislation for political purposes. Gas liberalization has surely been influenced by the creation of a regional energy market as well. Hence, a lot will depend on the BEMIP and if it succeeds with establishing a regional gas market. However, for the time being, Lithuania seems to be in a similar case as Finland, which makes it difficult to economically and politically justify gas liberalization. Nevertheless, without the EU the past

⁵³ However, the use of EU energy legislation to foster political goals may be problematic. There is a risk of overshooting and scaring off potential energy investors in general. An alternative option would have been to increase the powers of the energy regulator with regard to establishing a truly competitive market environment for gas supply.

and current steps towards a competitive market environment would probably not have been possible. However, as of today, Lithuania's recent gas liberalization steps seem strongly affected by domestic politics biased towards satisfying particular energy security interests.

8.6 LATVIA

8.6.1 *CHANGING THE RULES OF THE GAME IN ELECTRICITY SUPPLY IN LATVIA*

In 1998, the Latvian government adopted a new Energy Law that was aimed at increasing competition in the electricity sector. That new legislation was implemented in 1999 based on Regulation No. 326, which specified the measures necessary to increase competition (ERRA Website 2011). Similarly to Poland, the new legislation established a single-buyer approach in Latvia's electricity industry (Von Hirschhausen 2002: 194). The regulation also provided for market opening, which was conducted gradually over the following years. It displayed a clear ambition to increase competition by continually opening the electricity market to consumers. The initial threshold to qualify for market access was reduced in 2001 and later in 2003 in order to enhance consumer participation in the power market (PUC 203: 31).

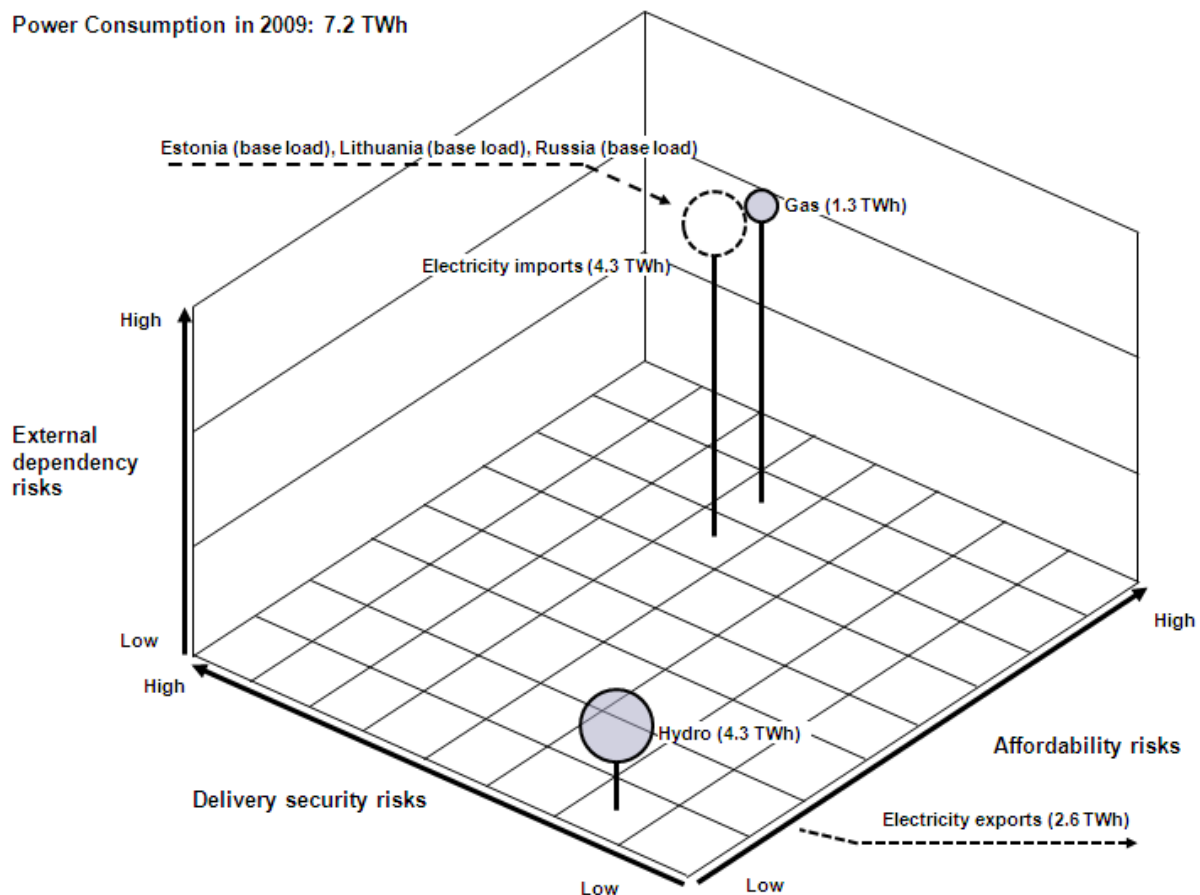
The government's liberalization policy in 2001 clearly reflected the EU's first ELP (LPUC 2001: 19). However, the major step towards changing the rules of the game and establishing a competitive market environment happened only three years later in 2004, when Latvia's energy legislation was completely revised to transpose the EU's second ELP. The result was the creation of a specific Electricity Market Law, which was adopted in 2005. It provided the basis for the future functioning of Latvia's electricity market by introducing regulated TPA, legal unbundling and the EU's time schedule for full electricity market opening by 2007 (LPUC 2004: 6; LPUC 2005 Annex I: 1).

Similarly to Lithuania, compared to the previous legislative changes, it was the third ELP adopted in 2009 that seems to have been greeted with much more political support than the previous ones. This was, similarly to Lithuania, related to the Baltic Energy Market Plan (BEMIP). The BEMIP's important role in fostering energy liberalization applies not only to Lithuania but also to Latvia, given the country's particular power supply situation.

8.6.2 ROLE OF ENERGY SECURITY, ECONOMIC AND POLITICAL JUSTIFICATIONS

Since the dissolution of the Soviet Union, Latvia has been in a rather awkward situation in terms of energy security with regard to its power supply. By taking into account the gas used for power production, the country de facto relied on imports of up to 50 percent to satisfy its power consumption. The following figure shows Latvia's power supply situation for 2009, which basically has not changed since 1991.

Figure 12: Power Supply Situation for Latvia in 2009



Note: See Annex I for details on visualization of power supply situation and Annex II table 6 for relevant figures.

How could this obviously huge dependency arise? The answer can be found in history, when Latvia was a part of the Soviet Union. As explained in the previous case study the Baltic States were complementary in electricity supply. Each country served a particular load capacity. While Lithuania (nuclear power) and Estonia (oil shale) provided base load for the region, Latvia provided those countries with peak load (Latvenergo Website 2011). That made sense as Latvia could rely on significant hydropower capacities. This made the region's

power supply, in terms of merit order, economically efficient. That supply structure did not only reflect the planned economy approach prevailing in the Soviet Union but, in effect, an approach applied in Western Europe as well, prior to energy liberalization (chapter 2.2.2). As that regional power supply structure did not change after the dissolution of the Soviet Union, it would have been difficult to make an investment case for building significant base load capacities in Latvia. Any new generation capacity would have had to compete with the cheap electricity imports from Lithuania and Estonia. However, despite being hugely dependent from electricity imports, Latvia enjoyed the lowest electricity prices in the EU, so far.

Economic Justifications for Liberalization

Latvia's electricity supply situation in the past did not really provide economic justifications for liberalization. It would have been difficult to make the case for an increase in economic efficiency and, eventually, argue with (even) lower electricity prices. In addition, Latvia's power supply structure clearly hindered the establishment of a competitive power market, which was also acknowledged by the Latvian energy regulator.⁵⁴ It concluded in 2003 that the supply situation at that time did not encourage new market participants to enter the Latvian electricity market (LPUC 2003: 30). As a result, Latvia's power market has, until today, been dominated by one company, Latvenergo, which was also the country's major producer of electricity (LPUC 2003: 26). In 2003, it accounted for 90 percent of power generation in Latvia, a figure that did not significantly change until today. In addition, the company was also in charge of the electricity imports and negotiating the electricity tariffs with its counterparties in Estonia, Lithuania and Russia (LPUC 2005: 16).

Political Justifications for Liberalization

Similarly to Lithuania, the structure of the power supply system as well as the small size of the domestic electricity market simply did not provide for compelling economic justifications and, eventually, raised little interest among policymakers to change the existing situation. Without consumers expecting to gain something from a more competitive market environment, such as lower electricity prices, decisive political pressure for creating a truly competitive electricity market was unlikely to emerge (Interview LPUC 2011).

⁵⁴ The cheap electricity imports directed investments only into generation projects that would benefit from public support schemes and show lower commercial risks, such as wind power, small hydro or CHP.

The situation changed with the BEMIP and the prospect that Latvia would become part of a wider regional power market. It revived the political support for electricity liberalization, not least due to the financial incentives set by the BEMIP, as the EU could be expected to support the construction of important infrastructure, such as cross-border electricity interconnections, and investments in the Latvian electricity infrastructure.

There is an important difference regarding today's support for electricity liberalization in Latvia compared to Lithuania. It is less driven by energy security concerns. This has probably to do with Latvia's long experience of being electricity-dependent. As a consequence, Latvia understands its recent ambitions to establishing a truly functioning electricity market as part of deepening economic integration within the EU (Interview LPUC 2011). Contrary to Lithuania, energy liberalization in Latvia seems to be driven by an economic rational and less by energy security politics.

8.6.3 ROLE OF THE EU IN ELECTRICITY LIBERALIZATION IN LATVIA

As mentioned, Latvia's electricity market did not really provide for the economic justification for electricity liberalization, in the past. In that context, the EU's influence on electricity liberalization was facilitated prior to 2004, less by economic and political justification for liberalization but most likely by the country's ambitions to become a Member State.

Afterwards, EU influence was basically the result that Latvia as a Member State had to comply with EU energy legislation. This is clearly reflected in the official energy reports as after 2004, they put changes in Latvia's energy legislation always in the context of complying with EU energy legislation. That does not mean that Latvia was not interested in energy liberalization at all. The adoption of a liberalization policy in 2001 and the official energy reports provided by the energy regulator reflect a genuine ambition to establish a competitive market environment for electricity supply. It suggests that Latvia was to some degree interested in electricity liberalization. However, structural and, eventually, political obstacles were simply too high for that endeavor to be successful.

The renewed political interest in establishing a competitive market environment in Latvia is the result of the BEMIP. It permits an economic case to be made for fostering the creation of a functioning competitive market environment. Hence, it provides the basis for politically justifying further electricity liberalization. In this context, unsurprisingly the transposition of the third ELP is justified in Latvia by arguing that a competitive market environment for electricity will contribute to Latvia's economic integration to the EU (Interview LPUC 2011).

8.6.4 GAS LIBERALIZATION IN LATVIA AND THE ROLE OF THE EU

Gas liberalization in Latvia somehow mirrors Finland's approach to that issue. Initially, Latvia showed some interest in establishing a competitive market environment, by adopting a relevant policy in 2001. However, a few years later in 2003, the government concluded that without similar reforms in Russia and access to new supply sources, no meaningful competitive market would arise. Similarly to Finland, Latvia's small and isolated gas market allowed the country to derogate from the EU's energy legislation. Eventually, in 2005, Latvia adopted an amendment to the Energy Law, which postponed gas liberalization until 2010 (LPUC 2007: 18). In 2009, that was further extended to 2014 (LPUC 2009: 22).

With regard to gas liberalization, we can assume that any legal steps were driven by the EU. It is unlikely that Latvia would have adopted explicit legislation postponing gas liberalization in the absence of EU pressure to liberalize.

The different approach to gas supply between Lithuania and Latvia is very informative. It highlights that EU legislation may not only be transposed and implemented for the sake of its basic goal, such as the establishment of a competitive market environment for energy, but may also serve national political goals.

8.7 ESTONIA

8.7.1 *CHANGING THE RULES OF THE GAME IN ELECTRICITY SUPPLY IN ESTONIA*

Energy liberalization in Estonia started in 1998 by adopting the Energy Act (ECA 2009: 68). It introduced regulated TPA and limited market opening (Von Hirschhausen 2002: 194). Five years later, in 2003, Estonia reformed its energy legislation and adopted the newly created Electricity Market Act (ECA 2009: 14). While it did introduce legal unbundling, it did not enhance market opening (ECA 2009: 14). With regard to the latter, Estonia's accession to the EU or the second ELP had no effect on market opening. In effect, Estonia could derogate from the second ELP, which was an outcome of its accession negotiations prior to joining the EU (ECA 2009: 14). The derogation was only provided by the EU on a transitional basis.

In practice, that transition period consisted of a different timetable with regard to market opening compared to the time schedule set in the EU's second ELP. Estonia committed itself to opening 35 percent of its electricity market by 2009 and providing for full market opening

by 2013. In practice, it meant a steady reduction of the threshold qualifying consumers to access the electricity market (ECA 2009: 14).⁵⁵

In 2010, by amending the Electricity Act Estonia took major steps towards full electricity liberalization and to comply with the third ELP (ECA 2010: 6). In addition to introducing ownership unbundling, the amendments stipulated that qualified consumers had to buy electricity on the free market ensuring Estonia's compliance with the market opening agreed with the EU (ECA 2010: 6). The latter was not welcomed by the affected consumers as purchasing electricity in the free market is much more expensive than buying it at regulated rates. The free market is provided by Nord Pool Spot (NPS) Estlink, which has been operational since April 2010. Similarly to Lithuania's Baltpool, it is modeled after the Nordic electricity market NordPool.

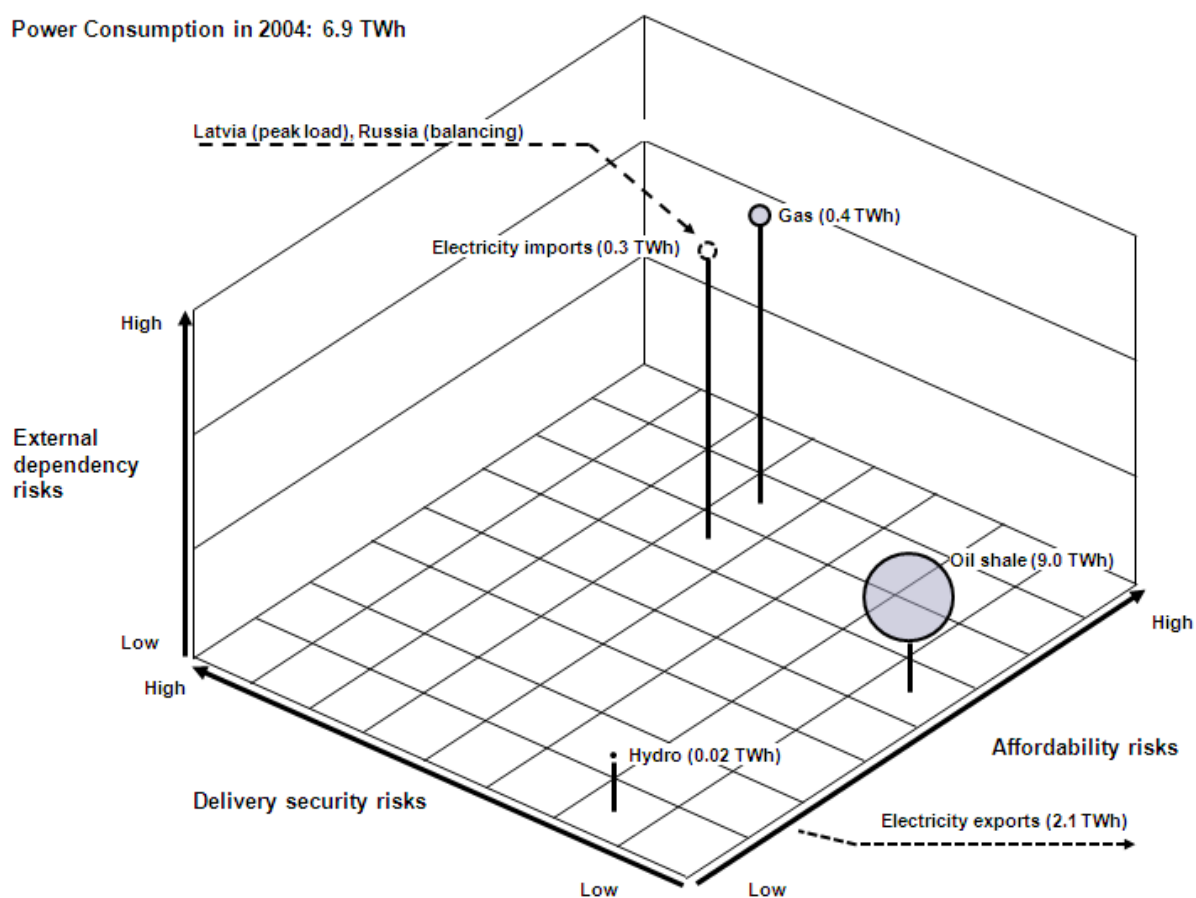
Electricity liberalization in Estonian seems to be completely different than in the other Baltic States and the other case studies. How can this be explained? In order to understand that it is necessary to take a closer look at Estonia's power supply situation and, of course, Estonia's accession negotiations.

8.7.2 *ROLE OF ENERGY SECURITY, ECONOMIC AND POLITICAL JUSTIFICATIONS*

Estonia's power supply situation is characterized by a strong reliance on oil shale as a primary resource for electricity generation. That is shown by the following figure detailing the country's power supply situation in 2004.

⁵⁵ Others would refer to forcing consumers to buy electricity on the open electricity market. As in all other Baltic States, lowering the threshold for consumers to access the free market did not result in a run on the free market. Instead large power consumers preferred to continue buying electricity at regulated rates. However, this is not an exclusively Baltic issue. In Switzerland industrial companies fought for access to the free electricity market prior to liberalization. The same companies tried in 2010 by legal means to flee the free market and return to regulated rates (NZZ 2010).

Figure 13: Power Supply Situation for Estonia in 2004



Note: See Annex I for details on visualization of power supply situation and Annex II table 7 for relevant figures.

In terms of energy security, Estonia's situation was rather comfortable. Contrary to what the figure suggests affordability risks were rather low with regard to Estonia's main source for electricity—oil shale. While the price for oil shale was regulated, it reflects with a major discount the international price developments for coal.⁵⁶ The resulting cheap electricity was not only the result of the regulated price for oil shale (and thus the comparatively cheap price for coal) but also, and similarly to Lithuania, because the power facilities burning oil shale were built during Soviet times. However, both factors became a problem with Estonia's ambition to become a member of the EU. First, producing electricity with oil shale emits huge amounts of CO₂. Second, the old power units burning oil shale released major amounts of pollutants, in particular sulfur dioxide and nitrogen oxides. Similarly to Lithuania's nuclear power plant, the EU was eager to have Estonia close down its heavy polluting power

⁵⁶ See Eesti Energia Annual Report 2008–2009. In terms of pricing mechanism, except for the fact that it is subject to official regulatory approval, it seems to follow a similar logic as applied in gas contracts where the reference price is usually based on a basket of competing sources of energy.

facilities, at the very least to meet the EU's strict environmental legislation.⁵⁷ However, as the previous figure indicates any changes with regard to the use of oil shale would have triggered a radical change concerning Estonia's power supply and, eventually, reshaped its energy security situation. Complying with the EU's environmental legislation for exhaust gases would have meant closing those polluting power plants and compensating the power losses basically with imports from abroad, coming either from Lithuania or Russia. This is not to mention the huge social and economic costs that would have affected Estonia's already economically deprived northeastern region.

The energy issue was so critical, prior to 2004, that it posed a clear threat to a successful conclusion of the accession negotiations between Estonian and the EU (Interview EMEAC 2011). In the end, Estonia and the EU agreed on a compromise. It consisted not only of a transitional period for market opening but also a restructuring plan for the electricity industry. The transitional period was to provide Estonia the necessary time to upgrade power production facilities and, thus, comply with the EU's environmental legislation (Mäe 2007: 111). In addition to addressing its polluting power generation capacities, investments in new energy infrastructure would put Estonia on a broader electricity supply basis.

While the reduction of sulfur dioxide and nitrogen oxides emissions can be improved by technical means and related investments, that is not the case with CO₂. As a member of the EU, Estonia takes part in the EU's emission trading system (ETS). The shift from the allowance approach to auctioning by 2013 is expected to massively increase the costs for CO₂ emissions. That will obviously affect Estonia's power generation burning oil shale. Estonia's government expects that the country's power supply situation will change in the long term, in particular, as electricity generation based on oil shale will become significantly costlier and, thus, less competitive (Interview EMEAC 2011). That leads to fears that Estonia's power market may become subject to increasing inflows of cheap Russian electricity. In that respect, Estonia seems to face, in the medium to long term, the same challenges Lithuania faces today—however, with some differences.

While after the shutdown of the Ignalina NPP, Lithuania had to actively look for alternative electricity sources and found them in Russia; the fear in Estonia is that electricity from Russia will find its way to Estonia. When Estonia fully opens its electricity markets by 2013, all consumers will be able to independently choose their power supplies. Given the expected

⁵⁷ In that context we speak of Directive 2001/80/EC, which tightens sulfur and nitrogen emissions for exhaust gases.

price increase for oil shale-produced power, consumers will look for cheap alternatives. Under such circumstances, Russian electricity might be one of them. In this context, Russia's imminent accession to the WTO is a major concern for Estonia. The government fears that this will enable Russian electricity companies (basically INTER RAO UES) to access Estonia's electricity market. In strict legal terms such fears seem unfounded (chapter 7.2.2). However, the problem remains existent for other reasons. Estonia has no interest in restricting trade relations with Russia. Such behavior may unnecessarily complicate trade relations between Estonia and Russia, not at the least given that Russian electricity could reach the Estonian market through other entry points, for example Lithuania or Latvia, or based on other creative power trading solutions maybe involving the Nordic countries.

Although electricity dependency may be worrisome in terms of energy security and for certain political reasons, the key issue at stake is the same as in Lithuania. An increasing dependency on comparatively cheap Russian electricity risks undermining investments in Estonia's own energy sector. In the worst case, this may lead to a permanent external dependency for power supply.⁵⁸ Estonia has to address an upcoming energy security challenge that is, unlike in Lithuania, coming stealthily. As we will see, the solution opted for by Estonia looks very familiar.

The renewed interest in energy liberalization that has been visible since 2010 is not only due to the fact that the transitional period for electricity market opening is coming to an end. It can also be understood as reflecting a strategy to mitigate the energy security risks related to Estonia's changing power supply situation in the medium to long term. Less surprising and similarly to the previous two Baltic Countries, the most important single factor contributing to Estonia's renewed interest in creating a competitive market environment is the BEMIP. Once more, it provides the economic and political justifications for a country to decisively engage in energy liberalization.

Economic Justifications for Liberalization

Estonia's electricity market measured by the population it serves is much smaller than the Lithuanian or the Latvian market. As the Latvian case has showed, finding the economic justification for establishing a competitive market would not have been easy in Estonia today or in the past. The main electricity company in Estonia was and still is Eesti Energia. With its

⁵⁸ Not taking into account the loss of income to the Estonian economy—one of the arguments stressed in Lithuania's energy security strategy.

oil shale-based power generation it satisfied, in the past, almost 100 percent of domestic demand and exported a significant share of electricity to Latvia. Since the shutdown of the Ignalina NPP, electricity exports also find their way to Lithuania. Hence, similarly to Lithuania and Latvia, the supply structure would clearly have hampered the performance of a competitive electricity market in Estonia in the past.

However, there were also technical and institutional reasons that made the establishment of a competitive market very difficult. As mentioned earlier, the Baltic States belong to the Unified Power System. It means that they share the transmission network, in terms of a wider system, with Russia and Belarus. Any changes in the use of the system would have required additional coordination and the consent of those countries. That would have been the case with creation of a competitive electricity market in the Baltic States. Such changes were likely to face resistance or simply a lack of interest on the non-EU side. That was a fact that the EU, eager to liberalize, did not fully understand initially when it called upon those countries to engage in energy liberalization. This situation in technical terms clearly would have hampered the establishment of a competitive electricity market in the Baltic States (Interview ECA 2011).

As in Lithuania and in Latvia, the BEMIP also provided Estonia with a clear economic justification for electricity liberalization. Only with the prospect of becoming part of a wider regional electricity market, fully liberalizing the Estonia electricity supply became economically sound. Again the BEMIP's success as a driving factor is that it promised investments in important infrastructure and a schedule for establishing the regional market. With regard to infrastructure investments, we speak in the case of Estonia of connections to Finland. A first connection (Estlink 1) with a capacity of 350 MW became operational in 2007. By 2014, another connection (Estlink 2) will provide an additional 650 MW.⁵⁹ Those connections have the effect to partially integrate Estonia into the Nordic power market. An important step has been made by opening an electricity spot market in Estonia, NPS Estlink. Along with the power lines connecting the Estonian and Finnish electricity markets, it provides the basis for a wider bidding area involving the Nordic countries (ECA 2010: 12). That new market institution and the expected upward pricing pressure on Estonian electricity fit Estonia's approach to address the expected upcoming energy security issues, which leads us to the political justifications for energy liberalization.

⁵⁹ In the context of the BEMIP, Estlink 2 benefits with 100 m euros of Commission funding (total project costs are estimated at 320 m euros). The remaining costs are shared between Elering, Estonia's transmission system operator and Fingrid, its Finnish counterparty.

Political Justifications for Liberalization

As usual, the political justifications for energy liberalization reflect the economic arguments related to Estonia's participation in a regional energy market. However, and probably equally important for Estonia, the arguments are related to energy security. In that sense, the political justification is also based on the contribution that energy liberalization (in the context of the BEMIP) will provide in terms of energy security. It is expected to be the case for various reasons. It has the potential to enhance and diversify Estonia's access to external sources of electricity by contributing to the construction of the relevant infrastructure. An important aspect by which energy liberalization (again in the context of the BEMIP) will contribute to Estonia's energy security is by increasing energy market integration between Estonia and Finland. That allows the creation of a regional bidding area that, as already mentioned, is expected to increase the price for electricity in Estonia. This is an important element in order to keep Estonia's energy sector attractive for investments. Employing electricity pricing as a means to ensuring that investments in the Estonian energy sector are not undermined by cheap electricity from Russia is reflected in Estonia's intention to prohibit bilateral electricity supply agreements (OTC). Instead Russian electricity will be allowed to access the Estonian market only through the electricity spot market NPS Estlink. This is expected to guarantee a certain price level keeping the Estonian electricity market attractive for investments.⁶⁰

8.7.3 ROLE OF THE EU IN ELECTRICITY LIBERALIZATION IN ESTONIA

The EU's influence on energy liberalization in Estonia is very similar to Lithuania. Although Estonian policymakers in the past, given that they were (and still are) very much influenced by neoliberal approaches to the economy, would have supported a competitive electricity market, it would, for structural reasons, most likely have failed. In that sense, Estonia does not differ from Lithuania or Latvia. Given the strong incumbent electricity company, Eesti Energia with a de facto monopolistic market position, competition would unlikely have emerged as a consequence of merely changing the rules of the game.

The EU's influence in Estonia, however, manifests itself particularly in the context of changing the supply structure. Based on its environmental legislation the EU reshaped Estonia's power supply situation in the long term and provided, along with the BEMIP, the

⁶⁰ In effect, Russian electricity will be subject to the clearing prices provided by the spot market (chapter 2.5.2). Such an approach to energy security challenges may be compelling but also poses significant risks. It is unclear if higher electricity prices alone will secure investments in the energy sector.

basis for Estonia to decisively engage in electricity liberalization. Once more the BEMIP and, thereby, the clear prospect with regard to a regional electricity market played a crucial role. It seems unlikely that without it, Estonia would have embraced the establishment of a competitive market environment given the energy security challenges that it faces now (assuming Estonia's compliance with the EU's emission trading scheme (ETS)). At the end it is the emerging regional energy market that provides Estonia with the economic and political justifications for energy liberalization and, thus, facilitates the transposition and implementation of the third ELP of the EU in Estonia.

We can conclude that Estonia (along with Lithuania) is a case that highlights the role that national interests and energy security play in determining EU influence on energy liberalization. This is evidenced by the agreement that Estonia reached with the EU during its accession negotiations, which postponed full market opening until 2013. Other evidence is that energy liberalization today also benefits from the fact that it is believed to enhance Estonia's energy security in the medium to long term. Thereby, the EU's political and financial support for the creation of a regional electricity market plays a decisive role.

Would energy liberalization have been possible in Estonia in the absence of the EU? Given the ambitions of the Baltic States to establish a common electricity market, this indicates that it would to some extent have been possible. However, assuming no changes in Estonia's supply structure (same in Lithuania and Latvia), any liberalization would most likely have been limited to facilitating cross-border power trading. Any far-reaching measures to change the economic organization of electricity supply would most likely have met significant domestic political resistance. In retrospect and today, the EU's ELPs provided the governments in the Baltic States (and in Germany and Poland) with a tool to enforce regulatory changes that otherwise would have been subject to tough political debates and an uncertain outcome.

8.7.4 GAS LIBERALIZATION IN ESTONIA AND THE ROLE OF THE EU

Compared to Lithuania and Latvia, Estonia moved comparatively early and quickly ahead with gas liberalization. This is a result of Estonia's Energy Industry Act of 1998, which opened already 95 percent of the gas market (except for households). In 2003, Estonia adopted the Natural Gas Market Act in compliance with the EU's first ELP (ECA 2010: 23). Two years later, Estonia transposed and implemented the second ELP in 2005 (ECA 2005: 10). It led to full market opening by 2007 and the introduction of legal unbundling for gas

companies serving more than 100,000 customers (ECA 2010: 60, 21). In 2010, new amendments to Estonia's gas legislation entered into force showing decisive steps by the government towards gas liberalization. It introduced ownership unbundling and forced all consumers to buy electricity from the open market (ECA 2010: 23). Thereby, Estonia opted for the most far-reaching approach concerning unbundling.

Estonia's gas legislation applies in particular to Eesti Gaas, with the majority shareholders Gazprom and E.ON Ruhrgas. It is Estonia's dominant player in the gas market and imports gas for Russia. The company unbundled in 2006, and spun off its transmission operations into a separate legal entity, EG Vorguteenus. Currently, the next step will be ownership unbundling, which means that Eesti Gaas will have to sell its transmission company.

Similarly to Lithuania, the Estonian approach differs from Latvia (and Finland), which opted to derogate from the EU's energy legislation with regard to gas liberalization. This indicates that in the case of Estonia (as in Lithuania) EU legislation may not only be transposed and implemented for the sake of its basic goal, such as the establishment a competitive market environment for energy, but may also serve particular domestic political interests.

Gas liberalization seems to have been driven initially by Estonia itself evidenced by the significant market opening by the end of the 1990s. However, it seems unlikely that the following liberalization steps would have been possible without the support by the EU and the third ELP. This applies in particular to ownership unbundling. Given that Estonia is in a similar position as Finland, the differences with regard to gas liberalization seem to be related not to economic justifications but to the role that energy security plays in domestic politics. Hence, the EU's influence on gas liberalization in Estonia benefited (among other factors), as already discussed with regard to electricity liberalization, from Estonia's political ambition to enhance its energy security situation.

9 ANALYSIS OF THE CASE STUDIES

In the previous chapter, we have investigated the EU's influence on energy liberalization in seven case studies in the Baltic Sea Region. The case studies indicated that the theoretical propositions made in the basic analytical framework (chapter 4.2) seem to some extent to provide valid explanations to the scope and limits of the EU's influence on energy liberalization in Member States. In this chapter, we perform a systematic analysis of the insights gained in the case studies. Drawing explicitly on the theoretical (chapter 3) and basic analytical framework (chapter 4), we first discuss the EU's influence on energy liberalization (chapter 9.1), which is followed by a discussion of the role of modifying factors in determining EU influence (chapter 9.2). Finally, we address two important additional factors identified in the case studies that were important in facilitating EU influence on energy liberalization (chapter 9.3). The aim is to infer, based on the insights of the case studies and guided by theory, general conclusions concerning the EU's influence on energy liberalization and, eventually, the effectiveness of EU electricity and gas market regulation. Thus, this chapter is a necessary step to answer, in particular, the second part of the research question guiding this study (chapter 1.1) and to some extent it lays grounds for discussing the future development of EU energy market regulation.

9.1 CAPTURING AND ISOLATING EU INFLUENCE ON ENERGY LIBERALIZATION

Capturing EU Influence

In order to investigate EU influence on energy liberalization, we decided to capture this phenomenon by theoretically conceptualizing it as EU influence in terms of Europeanization (chapter 4.1): “*EU influence in terms of Europeanization refers to the process through which the EU intentionally or unintentionally induces policy changes in a state and which on the national level can be contested in terms of political legitimacy.*” From a theoretical point of view, we can argue that the concept of EU influence in terms of Europeanization captured the EU's influence on energy liberalization in the case studies quite well.

We operationalized EU influence in terms of legally binding measures directed at changing the rules of the game for electricity and gas supply on the national level (chapter 4.1). In

empirical terms, those measures consisted of the EU's Energy Legislation Packages (chapter 6). As secondary legislation, Member States as well as Accession Candidates (chapter 7.1.3) were required to transpose and implement them. Although politically framed as harmonizing measures, the case studies show that for most countries the ELPs meant a public policy shift with regard to the economic organization of electricity and gas supply (chapter 2.3.3).

This raises political legitimacy concerns with regard to the EU influence and the resulting policy change (chapter 3.2). In other words, was the EU legitimized in changing national public policies guiding the economic organization of electricity and gas supply in those countries? In that respect, differences exist from country to country. The political legitimacy of EU influence may be less contested in those countries, which were already on the path of liberalization, such as Sweden and Finland. Political legitimacy may also be of low concern where national governments were previously involved in adopting the ELPs, such as Germany. Cases where political legitimacy may have been an issue were the Accession Candidates. Poland, Lithuania, Latvia and Estonia for obvious reasons did not participate in the legislative process on the EU level. It concerns the first and second ELPs. However, political legitimacy concerns may also crop up in all those countries where energy liberalization was not grounded in domestic political support. Or put differently, where national government used EU influence, in the form of the ELPs, to overcome domestic political resistance to energy liberalization, such as in Germany and in the Baltic States. Finally, there are those cases where EU energy legislation was used to advance additional goals, beyond establishing a competitive market environment, but to satisfy particular energy security or other domestic political goals, such as in Lithuania and Estonia. Those cases illustrate that EU influence may not only differ in terms of political legitimacy among countries but also with regard to its grounding.

While we did not investigate it explicitly, the case studies indicate that EU influence on energy liberalization is likely to be contested in terms of political legitimacy to different degrees among the countries. Another aspect that indicates potential political legitimacy concerns is that the EU's electricity and gas market regulation, in effect, by stipulating a specific public policy approach to the economic organization of electricity and gas supply, implicitly excludes other individual public policy options in Member States. If in a country this sort of EU influence is not contested for the time being, political legitimacy may become a concern as soon as domestic political pressure calls for changing the public policy approach, most likely triggered by national energy security concerns.

Although the issue of political legitimacy is not palpable and remains to some degree a subjective political issue, it is, nevertheless, import to acknowledge and if necessary address it. As mentioned in the theoretical framework, political legitimacy is an important factor determining the certainty and stability of regulation (chapter 3.2). This means that political legitimacy also matters for EU energy market regulation. As energy market integration continues, social and economic costs related to a collapse of EU energy market regulation will significantly increase. Under those circumstances, it becomes very important for policymakers to pay due attention to (the management of) political legitimacy concerns. Under today's unforeseen difficult social, economic or political circumstances in the EU, the issue of political legitimacy may influence domestic politics in a country and, thus, may become a decisive factor for the future certainty and stability of EU electricity and gas market regulation and, thereby, the regulatory framework sustaining the internal energy market.

Isolating EU Influence

We have argued in the theoretical part of this study that complementary to capturing EU influence is isolating EU influence (chapter 3.5). Therefore, we employed in the basic analytical framework a specific set of methodologies (chapter 4.3) to investigate the role played by the EU in influencing energy liberalization in the case studies, such as historical and counter-factual analysis. They were expected to help disentangle EU influence from other sources of influence and, thus, help us by providing a better understanding to which degree the EU energy market regulation in effect contributed to energy liberalization on the national level.

Prima facie, the EU exerted influence on energy liberalization in all seven case studies, including Sweden and Finland. However, historical analysis revealed that Sweden and Finland were cases where EU energy legislation shaped the rules of the game of power supply only after those countries already engaged in electricity liberalization. That confirmed our initial assumption made in the basic analytical framework (chapter 4.3) that in order to understand the true contribution of the EU it is necessary to address the EU's influence on a country's first decisive steps towards liberalization and, thus, its first clear political commitment to establish a competitive market environment for electricity and gas. With that focus the case studies show clear differences concerning EU influence. Apparently, the EU did not play with the ELPs in every country at the same time the same role in energy liberalization. This was confirmed in the case studies by counter-factual analysis. In practice,

the ELPs differed in their impact on energy liberalization between the countries. While ELPs did not matter in electricity liberalization in Sweden and Finland, Germany's energy liberalization was clearly driven by the first ELP. In Poland it was the case with the second ELP, while in the Baltic States, it was the third ELP that noticeably triggered serious political steps towards energy liberalization. We can conclude that each country shows a different transposition and implementation history with regard to EU energy market legislation. From an outside perspective, it is a surprising picture given that all countries were de facto subject to all three ELPs. As we already saw in the case studies and will see later those differences can be explained by different national contextual factors and, thereby, the influence of modifying factors (chapter 9.2).

Comparing electricity and gas liberalization is also interesting. While with regard to power supply, all countries were more or less willing to engage in the establishment of a competitive market environment even in the absence of the EU, the opposite was the case with gas liberalization. However, surprisingly, this did not translate into significant reluctance concerning the transposition and implementation of the relevant EU gas market legislation as it was the case with electricity in some countries. This can be explained by the fact that most countries relied on gas imports. Eventually, although the political interest in gas liberalization was low, EU gas market legislation did not face the same political controversy and, thereby, domestic resistance. In Lithuania and Estonia one can argue that EU influence was even welcomed to advancing governmental political goals, which by relying only on domestic political support would unlikely have been achieved. That indicates that the differences in the history of EU influence on energy liberalization among countries may also be explained by different political expectations with regard to the effect of EU energy market regulation on the national level.

Conclusions

From a theoretical point of view, EU influence in terms of Europeanization very well captured the role that the EU played in energy liberalization in Member States. In addition, by pointing to political legitimacy concerns, it directs our attention to a problematic aspect of EU influence on energy liberalization and, thus, energy market regulation. Acknowledging the problem of political legitimacy is very important, as it concerns a key factor for the certainty and stability of the EU regulatory architecture for the internal energy market.

However, by relying alone on capturing EU influence we would definitely have missed the fact that there were significant differences in EU influence on energy liberalization between the analyzed countries. The approach to isolate EU influence and, thereby, the use of specific analytical methods, revealed that in the case of EU influence on energy liberalization each country has an individual history. In other words, the influence of the EU on shaping national energy market regulation may be more complex in reality than expected at first glance.

9.2 MODIFYING FACTORS DETERMINING EU INFLUENCE

According to the theoretical framework, modifying factors reflecting the social, economic and political context on the national level were expected to determine the speed and scope of EU influence with regard to policy change in a country (chapter 3.4). For this study the relevant modifying factors to EU influence were identified in a discussion of the political economy of electricity and gas supply with a focus on those factors that were understood to have played a key role in permitting energy liberalization (chapter 2). Specific economic and political justifications for liberalization as well as the energy security situation were identified as key determinants for energy liberalization. Those factors were incorporated into the basic analytical framework that later guided the investigation of EU influence on energy liberalization in the case studies (chapter 4.2). The case studies indicated on an individual level that those modifying factors were able to explain to a significant degree the different national transposition and implementation histories with regard to EU energy market legislation.

Economic and Political Justifications for Electricity Liberalization

In retrospect, the case studies indicated that the economic and political justifications for electricity liberalization, in a classical sense, only played a role in Sweden, Finland, Germany and in Poland after restructuring electricity supply. Those countries either employed in the political discourse or confirmed objectively the classic arguments identified for electricity liberalization. In particular, the size of their domestic electricity market provided the basis for establishing a competitive market environment that would provide for efficiency gains. Those countries supported electricity liberalization by displaying the classic political justifications for it, such as trust in market regulation (to avoid market failure) and to some extent a preference for a reduced role of the state in economic activity. The cases of Germany and

Poland showed that the existence of economic and political justifications for electricity liberalization facilitated the EU's influence on electricity liberalization. To put it differently, the existence of those justifications determined the speed and scope of the transposition and implementation of EU electricity market regulation. The Baltic States also confirm the role played by the economic and political justifications in permitting EU influence on electricity liberalization. Given their small electricity markets, each dominated by one national power company supplying 90 percent of electricity consumption on average, it was rather difficult to initially advance the classic economic justifications for electricity liberalization. Efficiency gains, at least on a national basis, were unlikely to result from a competitive market environment given the existent market structure. Eventually, it was difficult to make the case for political justifications in the past. The fact that the policymakers and regulators in the Baltic States demonstrate in the interviews conducted for this study trust in market regulation and support for private actors in power supply is also the result of the anticipated development of a large regional energy market. The emerging economic and political justifications for energy liberalization in the Baltic States are the result of the BEMIP and, thus, of the prospect of those countries becoming parts of a regional energy market.

Although we can say that in the Baltic States the existence or absence of economic and political justifications determined the speed and scope of the transposition and implementation of EU electricity market regulation, the regional energy market as a third factor played a crucial role (chapter 9.3). We can conclude that the economic and political justifications for energy liberalization in the Baltic States differ from those advanced in Sweden, Finland, Germany and Poland with regard to their economic foundation, which is not the domestic but the regional energy market. In the case of Lithuania and Estonia, the political support for energy liberalization is even more complex as it is driven by energy security concerns. This is surprising as it contradicts the role of energy security in energy liberalization in the past (chapter 2.5.1) and, thus, the theoretical proposition made in the basic analytical framework concerning the expected negative correlation between energy security concerns and the EU's influence on energy liberalization (chapter 4.2).

Energy Security Situation

With regard to the theoretically expected negative correlation between energy security concerns and the EU's influence on energy liberalization (chapter 4.2) the case studies showed a different causal pattern than expected. While Germany and Poland provided

evidence that low energy security concerns may have benefited energy liberalization, the Baltic States provided evidence that increasing energy security concerns may have benefited EU influence on energy liberalization. In effect, the more serious energy security concerns became in Lithuania and Estonia in the context of electricity supply, the more increased the political support for electricity liberalization in those countries. Active participation in the emerging regional energy market, of which energy liberalization forms a necessary part, was perceived by those countries as an instrument to addressing national energy security concerns. In that context, energy liberalizations in the Baltics significantly benefited from the BEMIP, and thus EU financial and political support, which provides tangible prospects for the establishment of a regional energy market. Interestingly, similar mechanisms between energy security concerns and energy liberalizations in the context of creating a regional energy market can be identified in Sweden and Finland. There as well, liberalization seems to have benefited from the prospect of establishing a regional Nordic power market, which was expected to partially mitigate national energy security concerns in the participating countries.⁶¹

Although we could not confirm the theoretically expected causal effect that energy security concerns was expected to have on EU influence on energy liberalization, energy security concerns, nevertheless, seem to determine the effectiveness of EU energy market regulation. This is not only the case in the context of electricity supply but also with regard to gas. A closer look at gas liberalization is revealing. In terms of gas supply, Lithuania, Latvia, Estonia and Finland are all in a similar situation. However, they differ with gas liberalization. Latvia and Finland opted for a derogation of the EU's gas market legislation. According to them, their small and isolated gas markets did not economically justify establishing a competitive market environment for gas. Lithuania and Estonia took the opposite route. It can be argued that both countries decided for gas liberalization expecting in the medium to long term the development of a common gas market in the Baltic Sea Region. However, the case studies revealed that the decision to comply with EU gas market legislation was also driven by national energy security goals aimed explicitly at reducing gas dependency on Russia.

⁶¹ One could also argue that liberalization in the context of the creation of a regional power market was also driven by an expected economic optimization of national energy supply in the participating countries.

Conclusions

From a theoretical point of view, we can conclude that the concept of modifying factors (chapter 3.4) was useful in identifying key factors determining the speed and scope of EU influence on energy liberalization. In that context, the energy security situation as a modifying factor seems to have played a role in all case studies as an antecedent variable to the economic and political justifications for energy liberalization. That the theoretical expected causal effect on EU influence on energy liberalizations could not be confirmed is less relevant. It is already an important insight that energy security concerns seem to matter. It indicates that national interests are also likely to be key determinants for the effectiveness of EU energy market regulation on the national level in the future.

Furthermore, the case of Lithuania and Estonia indicates that it was useful to refer to the notion of modifying factors (chapter 3.4). In those countries, EU energy market legislation was transposed and implemented not simply for the benefit of a competitive market environment but for specific domestic political goals related to energy security. This indicates how the original purpose of EU influence may become to some extent subject to modification. It leads us back to the issue of political legitimacy. In the case of EU influence on energy liberalization, the notion of modifying factors indicates that EU energy market regulation may in reality be subject to different national legitimatization and political interests.

Finally, given the role that energy security played as a key modifying factor for EU influence on energy liberalization, in the past, EU energy market regulation will most likely also in the future be benchmarked with regard to its contribution to a Member State's energy security situation and probably also to specific national political goals.

9.3 OTHER FACTORS DETERMINING EU INFLUENCE ON LIBERALIZATION

As in most studies, additional explanatory factors determining EU influence, besides the established modifying factors, also came up in this study. Those additional factors were related in particular to the cases of Lithuania and Estonia but may also carry some general relevance. Those factors are changes to a country's energy supply structure and the creation of a regional energy market. Both factors seemed, in the case studies, to have paved the way for moving towards a competitive electricity market environment. This is in particular true for the Baltic States where they have clearly facilitated EU influence on electricity liberalization. As

both factors were influenced by the EU, they could be understood as an indirect route, compared to the ELPs, by which the EU influenced energy liberalization on the national level.

Changes in the Energy Supply Structure and Regional Energy Market

The EU changed the electricity supply structure by calling for the decommissioning of the Ignalina NPP in Lithuania and by altering the economic prospects for Estonian oil shale-based power generation. Thereby, the EU tackled the dominant market positions of the incumbent energy companies by significantly reducing their market power. The EU's intervention in the national power supply structure exposed both countries to new energy security risks. It raised in both countries the fear of becoming hugely dependent on Russian electricity supply and that their national energy sectors might become less attractive for investments due to cheap Russian electricity inflows. As a consequence, the changes to the electricity supply structure triggered not only energy security concerns but, at the end, contributed to electricity liberalization in both countries. However, an additional factor supported electricity liberalization—the prospect of a regional energy market.

One could argue that given the need for compliance electricity liberalization would have taken place in the Baltic States anyway. However, it is less clear to which extent this would have happened. It is unlikely that without the prospect of becoming part of a regional electricity market those countries would have opted for establishing fully competitive electricity markets. Liberalization without the prospect of a regional electricity market would most likely have increased energy security concerns. Thus, becoming part of a regional electricity market played a crucial role for energy liberalization in the Baltic States. In that context, the EU indirectly supported electricity liberalization with the BEMIP, which provided those countries with a tangible prospect in terms of the creation of a regional electricity market.

Conclusions

Energy liberalization in the Baltic States shows that a country's support for the EU's competitive market approach, and as such a particular public policy for the economic organization of energy supply, may be subject to the development of the national energy supply structure and the internal energy market. The role that the supply structure plays for energy liberalization was, especially, demonstrated by Finland's approach to gas liberalization (chapter 8.3.4). The lack of network connections and access to only one gas supplier led

Finland to decide not to liberalize in the 1990s. However, this decision may be revisited. In case a gas connection between Finland and Estonia is built, the old idea of a gas pipeline between Norway and Finland may be revived.

The role played by a country's energy supply structure and the internal energy market for energy liberalization has two general implications with regard to EU energy market regulation. On the one hand, it shows that developments in the national energy supply structure and the regional market can determine a Member State's political support for EU energy market regulation. On the other hand, it shows that the EU can foster political support in Member States for its energy market regulation (and the internal energy market) by actively shaping the energy supply structure on the national and regional levels.

9.4 KEY CONCLUSIONS AND VALIDITY

Key Conclusions

At first glance, the EU seems to have influenced energy liberalization in all the case studies as all countries transposed and implemented EU electricity and gas market legislation sooner or later. Based on that, one could intuitively conclude that the EU was a driving force behind energy liberalization in all Member States. However, in effect the influence of the EU on shaping national energy market regulation was a more complex process than a first glance would suggest. A closer look at the reasons countries differed in the speed and scope of energy liberalization shows that compliance with EU energy market legislation was determined by political interest and expectations of Member States concerning energy liberalization, which in all cases was influenced by a country's energy security situation.

If the EU as a regulator derives its legitimacy from the effect that the regulatory framework that it embodies and enforces entails for Member States, then political interests and expectations implicitly determine the political legitimacy of the EU's energy market regulation. Interestingly, in some countries political legitimacy was based on the economic benefits that energy liberalization and a competitive market environment were expected to provide (chapter 9.1). In other countries political legitimacy was rooted in additional or different effects that were expected to result from complying with EU energy market regulation. The latter concerned the expected contribution that transposing and implementing

EU energy market legislation would have in fostering certain political interests, not least in the context of benefiting a Member State's energy security situation.

In scientific terms, the EU's influence seems to have been in most of the cases a necessary but insufficient factor explaining energy liberalization in Member States. It was a necessary factor as it was usually employed to overcome domestic political resistance (chapter 9.1). It was not a sufficient factor as additional factors determined the transposition and implementation of EU energy market legislation. Those factors were the existence or absence of economic and political justifications for energy liberalization as well as the energy security situation of a country (chapter 9.2).

Acknowledging the role that national interests and energy security concerns played in determining EU influence on energy liberalization is important. It indicates that EU energy market regulation may be subject to different national performance expectations. Besides benefiting from the establishment of a competitive market environment for electricity and gas, some countries, if not all, will most likely continue benchmarking EU regulation with regard to the effect on their energy security. This means if EU influence works at the detriment of national energy security, the political legitimacy of the EU's energy market regulation will diminish.

In the context that energy market integration is driven by national interests, political legitimacy is very important, as it provides a key element for the effectiveness and certainty as well as stability of the EU's regulatory architecture sustaining the internal energy market. Any doubts regarding political legitimacy and, thus, certainty and stability may in the medium to long term lead to serious consequences—especially, in a competitive market environment. A perceived unstable regulatory framework may reduce the planning horizon of market players and, thereby, distort energy investments and the performance of the internal energy market. In addition, doubts concerning the certainty and stability of the regulatory framework may, under certain circumstance, precipitate its collapse with far-reaching negative consequences for the countries participating in the internal energy market.

The investigation of EU influence on energy liberalization showed that although energy market integration is often framed as European Integration, the process seems to be less driven by a European Idea as the adoption of ELPs at first glance may suggest, but more by specific and sometimes different national interests.

Validity of the Main Research Outcomes

The role that national interest and energy security concerns play in determining the EU's influence on energy liberalization and, eventually, the effectiveness of EU energy market regulation has to be treated carefully as a research outcome. The validity of those insights may be limited by the analytical framework employed in this study.

From a methodological point of view, the validity of the conclusions may be limited as they are based on a small number of case studies focused on a particular geographical region. It is possible that another selection of case studies would have provided a different picture concerning the role of national interests in determining the EU's influence on energy liberalization. For example, old Member States with considerably large energy markets may have shown fewer differences in economic and political justifications for energy liberalization.⁶² Thereby, it may also be possible that energy security concerns would not have played a major role in determining the EU's influence. However, the Baltic Sea Region was explicitly chosen for this study for the heterogeneity of the case studies. In that sense, the different case studies can be expected to have enhanced the validity of the research outcomes. In effect, with including very different countries, this study answered one of the major critiques directed at the validity of research outcomes in Europeanization studies (chapter 3.5). The validity of the research insights also benefited from including electricity and gas liberalization in this study, which provided to some extent the basis for cross-validation of research insights.

A more serious theoretical and methodological issue for the validity of the research outcomes concerns the empirical basis of the cases studies. We have implicitly treated decision-making with regard to energy liberalization in Member States as a black box. We have analyzed each case of EU influence on energy liberalization guided by theoretical propositions (chapter 4.2), which drastically reduced the empirical reality and complexity in which EU influence took place to a few empirical factors that were expected to have played a key role in determining EU influence in a country. The relevance of those theoretical propositions in the context of the EU's influence on energy liberalization can be criticized. However, the relevance is supported by the fact that the research outcomes basically confirmed the key factors determining energy liberalization identified in the existing literature on energy liberalization

⁶² Given the same source of political legitimacy for EU influence, under such circumstance, one may conclude the political stability of the EU's energy market regulation to be more firmly grounded than the case in reality may be.

(chapter 2) and on which the theoretical propositions were based. This backs the validity of the research insights.

10 EU ENERGY MARKET REGULATION: FUTURE DEVELOPMENTS AND CHALLENGES

In this chapter, we lay the ground to discuss the research insights gained in this study on the EU's expansion into electricity and gas market regulation and its influence on energy liberalization in the context of their implications for EU energy market regulation (chapter 11.2). We discuss the more active role of the EU in regulating for competition (chapter 10.1). Thereby, we take a closer look at manufacturing competitive energy markets in the context of changing and guiding the behavior of market participants (chapter 10.2). Given the important role that energy security concerns played in determining EU influence on liberalization, it is also necessary to take a closer look at current and future energy security concerns in EU Member States in the Baltic Sea Region. They are likely to determine domestic energy politics and, eventually, influence the development of EU energy market regulation (chapter 10.2). Finally, we address a neglected issue in the context of creating an internal energy market, which is systemic risk (chapter 10.3). We briefly discuss the general perception of systemic risk and elaborate on the systemic risk posed by Member States themselves.

10.1 MORE ACTIVE APPROACH TO REGULATING FOR COMPETITION

Often, the EU's energy market regulation is referred to as regulation by coordination. This basically reflects the involved institution, such as gas and electricity forums and the ERGEG, which can be characterized by employing a cooperative approach with regard to their functioning. Although those institutions are important, their contribution lays (besides contributing to draft EU energy legislation) basically in harmonizing national energy market regulation in Member States and facilitating the establishment of an internal energy market. In terms of regulating for competition with regard to the internal energy market (chapter 2.4), the EU's basic instruments in the past were the ELPs, which changed the rules of the game for electricity and gas supply and established rules for cross-border energy trading. With regard to regulating for competition, the third ELP highlights a new trend in EU energy market regulation, illustrated especially by the establishment of ACER and the ENTSOs (chapter 6.2.3). The third ELP indicates more active EU involvement in regulating for competition in electricity and gas markets. In other words, the EU is taking a more active part in designing and where necessary shaping energy markets in order to permit for a competitive internal energy market to emerge. This becomes especially evident with the 10-year network

development plan (TYNDP). Compared to the TEN-E program, which also supported infrastructure projects relevant to the internal energy market, the TYNDP can be expected to have a much stronger impact. In that regard, the doubtful effect of the TEN-E program in the past was due to the fact that lists of projects applying for EU support were either not relevant from an internal market perspective or in some instances represented a costly duplication of network infrastructure (GD Energy and Transport 2004: 27). The TYNDP reflects a clear enhancement of EU support. It consists of a bottom-up procedure driven by the national transmission system operators that are for cooperation purposes organized in the ENTSOs. Thereby, the TYNDP on an aggregated level represents the EU infrastructure development plans. The BEMIP as a regional development plan highlights the most significant difference to the TEN-E program and the more active role of the EU. Contrary to the TEN-E program EU support is not limited to politically facilitating infrastructure projects or funding feasibility studies. The EU's power to advance certain community-relevant infrastructure projects clearly increased as it can substantially contribute to the funding of projects.⁶³ While the development of regional energy infrastructure, in terms of planning, is still driven on the national level by the transmission system operators, the financial power of the EU, exerted by the Commission, can be expected to play a decisive role when it comes to the realization of planned infrastructure projects. In that sense, the EU may actively shape the energy infrastructure sustaining the internal energy market.⁶⁴

More active EU involvement concerning regulating for competition may take place with regard to the use of competition law as a way to manufacture competitive energy markets on the national or regional level. They are essential to the establishment of an internal energy market. In terms of regulation for competition, the EU would move from changing the rules of the game, as investigated in this study, towards a particular and very explicit form of changing and guiding the behavior of market participant (chapter 2.4.2).

⁶³ See the case studies for Lithuania (chapter 8.5) and Estonia (chapter 8.7) for the role of the EU in the BEMIP.

⁶⁴ The EU's active intervention can at first glance surely be understood to be beneficial to the establishment of the internal energy market as well as energy market integration. It may also be welcomed by national governments, not at least with regard to EU financial support; however, if to acknowledge that it consists to some degree of politically motivated intervention in the European energy market, which affects existing regional supply patterns. The resulting new energy market dynamics but, especially, the political motivation may increase investment uncertainty for energy companies with potentially unforeseen negative effects on energy security in Member States (chapter 2.5.2). This calls for a diligent analysis of existing nation and regional energy supply structures with the involvement of the energy sector, prior to EU support.

10.2 CHANGING AND GUIDING THE BEHAVIOR OF MARKET PARTICIPANTS

With regard to effectively contributing to a competitive energy market environment on the national and, eventually, on the European level, the scope of changing the rules of the game seems to have reached an end (chapter 2.4.1). In that context, future EU action may concern further harmonization and dealing with infringement procedures involving Member States.

The next step in supporting the establishment of competitive energy markets on the national level and, thus, in regulating for competition may be the increasing involvement of the EU in changing and guiding the behavior of energy market participants. In that context, the case studies of Lithuania and Estonia illustrate the high effectiveness of EU direct intervention in energy supply structures with regard to the establishment of a competitive market environment (chapter 9.3). The EU and, thereby, the Commission may increasingly try to directly shape the energy supply structure not only on the regional level, but also in Member States. In this context, the Commission expressed a clear will to address the issue of anti-competitive behavior in the energy sector by so-called pro-active competition enforcement (COM 2010b). This relies on identifying and addressing impediments to competition with the consequence of changing and guiding the behavior of market participants. That reflects the Commission's approach to the infringements of EU competition rules in the past. The Commission was not very interested in punishing companies but instead preferred legal settlements taking the form of commercial solutions benefiting at the end the establishment of a competitive market environment (chapter 6.3.2). This was facilitated by the commitment procedure that permitted the Commission to bargain on remedies with energy companies suspected of competition rule infringements. In the context of establishing competitive markets, Hancher and Hauteclouque (2010) referred to that phenomenon as market manufacturing (chapter 6.3.3). The most prominent case of market manufacturing involves Germany—one of the case studies investigated in this study (chapter 8.1).

10.2.1 COMPETITIVE MARKET MANUFACTURING IN GERMANY

Germany drew the attention of the Commission in 2006 due to a period of increasing German electricity prices. Given the strong power market concentration, the Commission suspected the four largest German electricity producers of market power abuse (FAZ 2008). The Commission addressed the perceived issue of market power abuse by applying commitment procedures involving those companies (Hancher and Hauteclouque 2009: 9). The commitment procedures' results were that in 2008, two of the largest power suppliers, E.ON and RWE,

agreed to divest their transmission network to avoid further antitrust investigations by the Commission. Eventually, in 2010, E.ON sold its high-voltage transmission grid to Tennet Holding (E.ON 2010). RWE agreed with the Commission on certain organizational changes with regard to performing its transmission business, which resulted in the setup of an independent transmission system operator (ITO) as stipulated in the third ELP (chapter 6.2.1). It is important to notice that the establishment of an ITO in the first half of 2009 took place prior to the adoption of the third ELP. Besides divestments, the commitment procedure also resulted in the release of power capacities by those companies, a measure aimed at increasing the liquidity in the German electricity market (E.ON 2008 and 2010). The Commission's intervention by means of commitment procedures in the German electricity market was problematic for three reasons, which were discussed earlier in a generic way in the context of the development of EU energy market regulation (chapter 6.3.3).

Issue of Political Legitimacy

The divestment of the high-voltage transmission grid by E.ON was an outcome of the commitment procedure, reached in 2008, that was not welcomed at all by the German government. The German government was opposed to ownership unbundling during the negotiations of the third ELP (Hancher and Hauteclouque 2010: 9). In that context, employing the commitment procedure as a tool for shaping energy supply structure and increasing competition on the national level may raise political legitimacy concerns with regard to the EU's influence on the German energy market (Hancher and Hauteclouque 2010: 9). This becomes particularly problematic, as the commitment procedure did not provide an answer to the question of whether a case of market power abuse and, thus, an infringement of EU competition rules really took place. It is worrisome in that context that energy companies were unlikely to challenge the Commission's allegations before the European Court of Justice, as this would most likely have entailed a costly and long as well as uncertain legal proceeding (Hancher and Hauteclouque 2010: 9). In the end, the strong bargaining position of the Commission may have led the German energy companies to opt for an agreement despite disagreeing with the allegations.

Ambiguity of Economic Analysis

The ambiguity of economic analysis in the context of energy markets is highlighted by the fact that Germany's competition authority decided to undertake its own investigation in that

issue. In their final report the competition authority concluded that uncovering instances of market power abuse in the electricity markets is a very difficult task given the complexity of electricity supply (GFCA 2011b: 2, 19). Even more importantly, the competition authority could not prove any abuse of market power by the German energy companies (GFCA 2011b: 2). However, the competition authority also concluded that competition in the German electricity market was still unsatisfactory. This was rather unsurprising as the various market monitoring reports published by the German energy regulator in the years before, and analyzed for the German case study (chapter 8.1), always pointed to a lack of competition in the German power market.

Risk of Increasing Legal Uncertainty

By applying the rule of reason the Commission identified the relevant German energy companies suspected of distorting the market and resulting in high electricity prices. It is an approach that focuses on the competitive behavior of individual companies and their effect on long-term consumer welfare. Establishing how individual behavior may negatively affect consumer welfare is not only difficult in Germany but in general. Applying such an approach results in increasingly difficult to predict cases of EU competition rule infringements. In the case of E.ON and RWE, releasing electricity capacities (as a part of the remedies they agreed to with the Commission) will most likely have an impact on their future investment decisions concerning new power generation capacities. In order to avoid once again being suspected of (real or fictional) EU competition rule infringements, they will most likely adapt their business behavior, which may in the worst case be at the detriment of Germany's energy supply security. This indicates how applying EU competition rules for the benefit of creating competitive markets may cause unexpected negative effects. In that context, the IEA (2008: 54) has voiced concerns over the application of EU competition rules and its negative effects for investments in the energy sector and, eventually, energy security.⁶⁵ Thereby, the IEA suggests that the EU establish a consistent code of compliance for energy companies, not only with regard to energy market regulation, but especially concerning the obligations arising from EU competition rules. As a result the IEA believes that this would increase the planning horizon of energy companies and, thereby, benefit the investment environment. According to

⁶⁵ In that context, the negative effect that legal uncertainties have for the planning horizon for market participants may additionally be exacerbated by the competitive market environment (chapter 2.5.2).

the IEA the latter is important as the EU faces the need for huge investments to replace aging large conventional power generation facilities (chapter 10.3).

10.2.2 COMPETITIVE MARKET MANUFACTURING IN THE BALTIC SEA REGION

In addition to Germany, other countries in the Baltic Sea Region may also become increasingly subject to energy market manufacturing by the EU. It may concern in particular Lithuania, Latvia and Estonia. So far, the Baltic States consisted of three individual energy markets, each one dominated by an energy company for electricity and one for gas supply. Assuming increasing regional market integration as a result of the new electricity and gas connections between them and the Nordic countries, the notion of relevant market will change for the energy companies in the Baltic States. As the relevant market is a key factor for assessing the behavior and market power of energy companies (chapter 6.3.1) energy market players in the Baltic States can be expected to attract more attention by the Commission. In the context of supporting the creation of a competitive regional energy market, the Baltic States may become subject to market manufacturing efforts by the Commission. It may be understood by the Commission as a complementary tool to its past and current involvement in fostering a competitive market environment (chapter 9.3).

10.3 NATIONAL ENERGY SECURITY CONCERNS IN THE BALTIC SEA REGION

In 2008, the IEA published a review of the EU's energy policy and energy security. One of the key statements was that the EU had clearly been lacking new investments in large conventional (fossil or nuclear) power plants since the 1990s (IEA 2008: 53). Such new investments are necessary as the existing power facilities are aging and face the end of their lifetime. New investments in conventional power plants are necessary as the whole of their production can, for the time being, not be compensated by renewable sources of power. The need for such large-scale investments is also emphasized in all national energy market reports analyzed for the case studies. Also policymakers and regulators interviewed for this study have voiced it as a major concern.⁶⁶ In other words, without new investments we are facing increasing energy security risks along all three dimensions: delivery security, affordability and external dependency. With regard to the reasons for the lack of investments the most

⁶⁶ This chapter does not reflect the view of any of the persons interviewed for this study, unless otherwise explicitly indicated.

obvious factor seems to have been energy liberalization. On the one hand, it had increased political, legal and regulatory uncertainty for over two decades to the detriment of the energy investment environment. On the other hand, the competitive market environment has (in the best case) shortened the planning horizon for energy companies or (in the worst case) exacerbated those uncertainties to the point of curbing energy investments.⁶⁷ Energy security concerns in the context of a competitive market environment (chapter 2.5.2) will to some extent guide the following discussion of current and upcoming energy security risks in the Baltic Sea Region with a focus on those countries investigated in the case studies.

10.3.1 DELIVERY SECURITY RISKS

As mentioned, one of the main concerns voiced by the IEA is a lack of investments to replace large conventional power plants. It forms a risk to delivery security. As we will see the countries in the Baltic Sea Region are exposed to it in different manners. In Finland it is not a significant concern. The Finnish Parliament approved the construction of two additional nuclear power plants recently in 2010 (BBC 2010). This shows that investments in large power generation capacities, such as nuclear, remain a political issue even after electricity liberalization. In that context, politics seems to have hampered the replacement of large power plants in Sweden and Germany. Both countries decided to phase out nuclear power in the past. However, the decisions to extend the lifetime of their nuclear power plants clearly worked at the detriment of new energy investments (IEA 2008: 117). In effect, the issue of new investments was postponed and potential investors willing to invest in alternative power plants were deterred, given the economically uncertain and politically unstable planning horizon. The solution for Sweden and Germany would be rather simple. Both countries would have to take a clear and reliable political stance towards the future of nuclear power in their electricity supply. Thus, in terms of providing a favorable investment environment, those countries are in a much better position than the Baltic States.

The Baltic States face serious concerns with regard to securing new investments in electricity supply. With the decommissioning of the Ignalina NPP, Lithuania became a net importer of electricity (basically from Russia). Estonia's power generation based on oil shale is likely to

⁶⁷ The huge investments in renewable sources of power in recent years do not contradict those effects. In almost all cases they benefited from public funding or support. This shows that investors generally prefer to invest in projects that provide a long planning horizon. The need for a long planning horizon results as the construction of power plants usually entails huge capital costs requiring a long time to recover them. Of course, one can also point to environmental legislation (CO₂) and local public opposition as having contributed to a lack of investments. However, the issue at stake is not building additional capacities but replacing existing ones.

lose in economic competitiveness in the coming years as its production costs are expected to substantially increase due to its CO₂ emissions. In both countries plans exist to commission nuclear power plants. Expected commissioning dates are 2018/2020 for Lithuania and 2023/2025 for Estonia.

However, with regard to the construction of a nuclear power plant, both countries face challenges that would apply to large investments in their energy sector in general. By being located between the Nordic, Russian and Polish power markets any investments in a large power plant in the Baltic States face substantial commercial risks.⁶⁸ Any power plant would have to compete with potential electricity imports from those power markets as the following table illustrates.

Table 14: Indicative Electricity Import Capacity Rates for the Baltic States (in TWh)

Capacity rates: 100%/50%	From Russia	From Finland	From Sweden	From Poland***
Lithuania (9.0 TWh)*	Through Belarus: 8.5 / 4.2 Kaliningrad (2016/18)** 5.9 / 2.9	-	NordBalt (2016) 6.1 / 3.0	LitPol (2016)* 8.7 / 4.3
Latvia (6.6 TWh)*	Direct connection 7.9 / 3.9	From Finland through Estonia: 6.5 / 3.2 From Sweden and Poland through Lithuania: 10.2 / 5.1		
Estonia (7.0 TWh)*	Direct connection 11.8 / 5.9	Estlink 1 (2007) 3.0 / 1.5 Estlink 2 (2014) 5.6 / 2.8	-	-

*Note: Figures are purely indicative. Capacity rates are calculated based on publicly available information assuming transmission lines are to be used in one direction for 8760 hours (100% annually)/4380 hours (50% annually). *Electricity consumption in 2008. **Kaliningrad is building a nuclear power plant with 2340 MW capacity. It is based on a joint venture of the Italian energy company ENEL and the Russian electricity company INTER RAO UE. It is likely that Kaliningrad may become an electricity exporter to the Baltic States. ***Poland is planning to commission a nuclear power plant by 2022. Sources: ECA (2010: 30), IEA Website (2011), INTER RAO UES (2010), LME (2010), LNCCPE (2005).*

⁶⁸ With regard to the huge market share that a nuclear power plant would have regionally, it may attract the attention of the Commission. The potential risk of an investment being perceived as working to the detriment of competitive markets in the Baltic States may pose an additional investment risk (chapter 10.2.2).

In this context, the Baltic States have already taken a first step towards reducing the commercial risks for potential investors and, thereby, securing a favorable investment environment. The challenge posed by cheap electricity supply from Russia with the potential of an undermining effect on energy investments in the Baltic States has been addressed. As we have seen this was a key rationale behind energy liberalization in Estonia and Lithuania (chapters 8.5.2 and 8.7.2). It resulted in speeding-up regional market integration and the establishment of new price bidding areas connecting the Baltic power markets with their Nordic counterparts. Although the risk of inflows of cheap electricity from Russia has been reduced the geographical situation remains a challenge for investments in the energy sector of the Baltic States. The establishment of a competitive market environment and energy market integration as a tool to mitigate the risk of cheap electricity imports from Russia (and increasing external dependency) also has downsides. Both can be expected to significantly reshape energy supply patterns in the Baltic States. Such a process increases investment uncertainty and reduces the planning horizon for energy investments. This is especially relevant for investments that require a long time to recover, such as the construction of a nuclear power plant. In other words the geographical situation along with the unpredictable dynamics in energy supply patterns may increase the commercial risks related to large-scale investments in the energy sector of the Baltic States.⁶⁹ In that context, national political concerns may be influenced less by an imminent threat to delivery security than by securing a substantial and viable domestic energy sector in the long term.⁷⁰

The Baltic States may in the long run not (only) become dependent on Russian but Nordic electricity imports. Even under such, circumstances, investors may remain wary of potential cheap electricity imports from Russia or of other domestic political or regulatory uncertainties. Assuming a conversion of electricity prices between the Baltic and the Nordic power market, exporting electricity from Finland, Sweden and Poland to the Baltic States may seem on a risk-adjusted basis commercially more reasonable than direct investments.

If delivery security concerns persist or increase, domestic political pressure to address the situation will increase in the Baltic States. National governments may then take political measures to enhance the planning horizon for investors and, thus, attract new investments to their energy sector. It may take the form of state aid by guaranteeing investors a certain rate of

⁶⁹ Compared to other EU Member States in the region, such as Finland, Sweden, Germany or Poland, the Baltic States seem to face, due to their geographic situation between two huge power markets, a much more difficult stance in attracting energy investments. This may be exacerbated by their small power markets.

⁷⁰ Despite the European Idea driving the internal energy market (chapter 5.2.1), it will remain a political priority for Member States to keep a viable domestic energy sector (chapter 10.4).

return on investment, providing public cofinancing, or other forms of public support. This may conflict with the existing EU energy market regulation and, especially, with the EU's strict approach to state intervention in markets. State aid may be understood to distort the competitive energy market environment and impede its performance.

10.3.2 AFFORDABILITY RISKS

According to the IEA report the expectation that competitive markets and, thus, energy liberalization would lead to lower electricity prices has not materialized so far (IEA 2008: 42). Interestingly, prices developments were almost a none-issue in the national energy market reports analyzed for this study. Most regulators explicitly state that electricity price developments are not of their concern. Nevertheless, some regulators address that issue. In line with the economic logic underpinning the competitive market environment, they suggest enhancing participation, especially, of retail consumers in the market to put electricity companies under competitive pressure to provide electricity at lower prices. They call in the energy reports for retail consumers to use the possibility to switch suppliers. More practical initiatives have started in Sweden and Germany directed at increasing price transparency. It reflects a general issue, which is the lack of demand-side participation in the electricity market. However, the problem not only differs from one country to another—it is also more complex and involves the amount of power traded on spot markets. While in Sweden and Finland most of it is traded on spot markets, in Germany a large share of electricity trade takes place via OTC trading. In any case, countries such as Germany, Sweden and Finland may cope with increasing electricity prices for retail consumers through public social support schemes, which amounts to subsidizing domestic electricity consumption. Given their lower economic power, the Baltic States and Poland may face more difficulties in addressing increasing electricity prices and, as a result, affordability risks.

Ongoing energy market integration in the Baltic Sea Region is expected to lead to a price alignment of Baltic electricity prices with Nordic power rates. A consequence will be substantial prices increases. Estonia expects the current prices to increase up to 20 percent by 2013 and 60 percent by 2016. This will be the result of full market opening and an increasing share of power being supplied by Finland. Market integration and the creation of regional price-bidding areas may be a good strategy to keep the domestic energy sector attractive for investments. However, as a result those countries are likely to face considerable social and economic problems due to increasing electricity prices. In addition to a surge in inflation rates

and a reshaping of the industry structure, the most dramatic effect of higher electricity prices is an increase in energy poverty. Given the limited national budgets of those countries, it seems unclear to which extent public funding can and will be employed to address that upcoming issue. In that context, support by the EU's cohesion fund may be politically and economically justified as price alignments and the subsequent increases are partially due to regional income disparities between the Baltic States and the Nordic countries. The example of Germany shows that a significant increase in electricity prices may also be interpreted as being the result of a lack of competition in the electricity market (chapter 10.2.1). The result may be Commission intervention in the Baltic States aiming at energy market manufacturing (chapter 10.1.2). Needless to say it may conflict with the ambitions of those countries to increase delivery security (chapter 10.3.1).

10.3.3 EXTERNAL DEPENDENCY RISKS

An important trend to which the IEA report points is the increasing importance of gas as a source for power generation in the EU and, thus, an increasing external dependency risk in terms of energy security (IEA 2008: 54). This finding is not new. The increase in gas consumption in general has environmental and economic reasons. From an environmental point of view, gas emits comparatively less CO₂ than other fossil fuels. This, in addition to very low gas prices during the 1990s, explains the significant growth of gas in power production. The increasing share of renewable sources of power, such as wind and photovoltaics, also contributed to the expansion of gas. It is needed for load balancing purposes due to the volatile electricity output of those renewable sources of power. However, the construction of gas power plants was also driven by the increasing competitive market environment (chapter 2.5.2). Compared to other conventional power facilities, gas-burning power plants are less capital-intensive and, thus, entail a comparatively lower investment risk but higher and more volatile variable costs, such as for fuel.⁷¹ In that sense, an increasing share of gas in a country's power production may significantly increase affordability risks (chapter 10.3.2). Once more the Baltic Sea Region shows significant disparities, this time concerning the issue of external dependency. This is particularly evident with regard to the

⁷¹ The relationship between the expansion of gas and the competitive energy market environment are very well illustrated by Great Britain in the 1990s, coining the notion of the "*dash for gas*". Today, the large share that gas plays in the country's electricity supply is a cause of concern as rising gas prices and volatility translate directly into electricity prices (BOFGEM 2010). In addition to affordability concerns, delivery security and external dependency risks are additional challenges that Great Britain faces today with regard to its reliance on gas for power production.

use of gas in power generation. The following table shows the use of gas for power generation in the countries analyzed in the case studies before and by 2008.

Table 15: Power Supply Structure in Germany, Sweden, Finland, Poland, Lithuania, Latvia and Estonia before and by 2008 (in TWh)

	Hydro	Nuclear	Coal	Gas	Oil	Wind/Solar	Biomass	Imports	Exports
Germany									
1998	17.1	161.8	299.4	54.1	6.6	4.4	-	38.4	39.5
2008	26.9	148.5	290.6	87.6	9.3	45.0	19.8	41.7	61.7
Sweden									
1996	51.7	74.2	4.2	0.5	7.2	-	-	16.3	9.3
2008	53.3	63.9	2.2	0.6	0.9	2.0	9.0	12.7	14.7
Finland									
1990	10.9	19.2	17.9	4.7	1.7	-	-	10.5	0.0
2008	17.1	22.9	14.3	11.2	0.9	0.2	10.0	11.6	3.3
Poland									
1998	3.8	-	139.2	0.9	1.6	-	-	11.6	10.5
2008	2.7	-	143.3	3.1	2.3	0.8	3.4	8.4	9.7
Lithuania									
2004	0.4	15.1	-	2.7	0.4	-	-	4.3	7.3
2008	0.9	9.9	-	2.0	0.5	0.1	-	5.6	6.6
Latvia									
2004	3.2	-	-	1.4				n/a	n/a
2008	3.1	-	-	2.0	-	-	-	4.6	2.1
Estonia									
2004	-	-	9.0	0.4	-	-	-	0.3	2.1
2008	-	-	9.6	0.7	-	0.1	-	1.3	2.3

Note: Gross figures only >0.09 TWh. Hydropower generation is subject to precipitation. Sources: EMEAC (2006: 11–53, 2007: 17–19), IEA (1990: 32,103; 2001: 215–217; 1996: 150; 1999: 215), IEA Website (2011).

The increasing role of gas in power generation is clearly visible in the table and affects almost all countries. The resulting external dependency poses different challenges for the countries. From an overall power supply approach, gas seems to be a low concern in Sweden, Finland and Poland. External dependency is an issue for Germany and the Baltic States. Those countries differ in the management of the issue, which reflects national politics and energy security preferences.

With Nord Stream—a new German-Russian gas pipeline through the Baltic Sea—Germany increased its reliance on Russian gas. Germany manages its external dependency on Russian gas by showing a clear political commitment to its energy trade relationship with Russia. This reduces delivery security and affordability risks as Germany is perceived as a stable and long-term market for Russian gas (chapter 2.5.2). That strategy reflects the good international political relations between both countries. The Baltic States, especially Lithuania and Estonia, opted for another approach to manage their external dependency on Russian gas. It is characterized by an approach aimed at reducing their dependency on Russian gas and diversifying gas import sources thanks to the internal energy market. This approach to managing external dependency risks reflects the tense international political relationship that those countries have with Russia. It is best illustrated by the way that those countries employed EU energy market legislation with the political aim of reducing Russian gas consumption on their territory (chapters 8.5.4, 8.7.4). This is not an unproblematic approach to external dependency risks. Being perceived as unstable energy markets, providing unclear planning horizons may negatively affect delivery security in the medium to long term and raise affordability risks as gas delivery and related infrastructure investments may be charged with an additional risk premium by the supplying gas company (chapter 2.5.2). Although based on legitimate political motives and national energy security concerns, the use of EU energy legislation for political purposes may cause unforeseeable and lasting negative effects on the investment environment in those countries. Given the increasing share of renewable power in the Baltic States, the need for balancing capacities and, thus, an increase in gas consumption in the medium to long term seems unavoidable. It may sooner or later call for rethinking the management approach to external dependency risks for two reasons. From an energy security point of view, Russia remains a source of gas with high delivery security and low affordability risks compared to liquefied natural gas (LNG).⁷² With the growing role that gas will play in electricity price building in countries with increasing shares of renewable

⁷² With the Gas Exporting Countries Forum (GECF), which controls 85 percent of LNG trade, we may be moving towards a similar international market that exists for oil and gas prices driven by similar factors.

power, affordability risks related to gas will play an important role. This is the case as power produced with gas can be expected to set clearing prices on electricity spot markets and, thus, determine the overall electricity price level (chapter 2.5.2).

Not visible in the previous table, but contrary to other countries in the Baltic Sea Region, the Baltic States face external dependency risks not only related to gas consumption but also with regard to electricity imports. Since the decommissioning of the Ignalina NPP, Lithuania is currently importing around 60 percent of their electricity from Russia, while Estonia is expected to start importing a significant share of electricity from Finland by 2014. In the coming years, Lithuania will diversify its electricity imports with the commissioning of new connections to Sweden and Poland. What is becoming clear is that the internal energy market may help to address external dependency risks, in terms of reducing the exposure to particular countries, such as Russia; however, concerning electricity and gas imports new external dependency risks loom on the horizon. Among them are also the challenge that an increasing (or potential) external inflow of electricity may pose to attracting investments to the energy sector of the Baltic States (chapter 10.3.1).

The EU's tangible contribution to managing external dependency risks is twofold.⁷³ The EU can contribute to the diversification of electricity and gas import sources by employing political and financial support for specific infrastructure projects—such instruments are TEN-E on the European level and the BEMIP on the regional level.⁷⁴ Another approach by which the EU may address external dependency risks is by improving energy trade relations. Thereby, the EU makes use of the mutual interest in stable trade relations that exists between energy producers and consumer countries (chapter 2.5.2). This is currently done on a political level based on energy dialogues with oil and gas exporting countries; however, with legally non-binding results. A complementary and more tangible approach consists of the EU's ambition to export its energy market regulation and, thereby, expanding the internal energy market to third countries (chapter 7.1).⁷⁵ An expansion of the internal energy market to Russia

⁷³ Political dialogues and partnership agreements are political means by which the EU aims at reducing external dependency risks resulting from international energy trade relations. In 2010, the EU and Russia launched a partnership for modernization. More important will be the outcome of a new EU-Russia partnership agreement. Such an agreement may provide the political basis for closer cooperation in energy trade relations. However, any agreement on energy trade relations between the EU and Russia is unlikely to go beyond a political commitment to foster a more competitive market environment.

⁷⁴ Based on the European Energy Program for Recovery, the EU made 2.365 bn euros available for investments in electricity and gas interconnection projects (COM 2010a: 5). Two important projects usually framed in the context of enhancing energy security and managing external dependency are the Nabucco (Turkey-Austria) and the ITGI (Turkey-Greece-Italy) pipeline (COM 2010b: 10).

⁷⁵ The EU has been very successful with exporting its energy market legislation to current and potential Accession Candidates (chapter 7.1.3, 7.1.4). An important case is Turkey, which illustrates the rationale behind

may be welcomed by the EU and a majority of Member States, but may pose new energy security concerns for the Baltic States. Unsurprisingly, the EU's support for infrastructure projects and the expansion of the internal energy market take a clear community perspective to external dependency risks and does not account for particular national interest. However, it also reflects the limits of EU influence on managing energy security. Member States will only support EU measures that benefit but not negatively affect the business activities of their national energy companies (Khiar 2006: 93).

10.3.4 ENERGY SECURITY CONCERNS AND EU ENERGY MARKET REGULATION

The discussion of national energy security concerns in the Baltic Sea Region reveals that they are different for each country. This reminds us of the insights gained in the analysis of the case studies (chapter 9.4). Assuming that national interests and energy security concerns remain important factors determining a Member State's support for EU energy market regulation, we can expect that increasing national energy security concerns may put EU energy market regulation under political pressure by Member States.

The discussed energy security concerns show four reasons that may lead to political pressure on EU energy market regulation in the medium to long term. First, by prescribing a competitive market approach to the economic organization of electricity and gas supply, EU energy market regulation reduces the ability of Member States to react to energy security concerns in the same way they were able to in the past, then often relying on state interventions in energy markets (2.2). Second, EU energy market regulation does not provide for accommodating individual national energy security concerns. It is driven by a community approach that applies not only to the establishment of the internal market but also with regard to the measures employed by the EU to deal with external dependency risks. Third, countries vary not only in energy security concerns but also in the ability and the political interest to address them. Examples are differences in the financial ability to address the issue of energy poverty and different understandings of the role of the EU in managing energy dependency risks. Finally, random factors, such as the geographical location and the size of the domestic electricity markets may potentially determine the attractiveness of a country for energy

the EU's approach to managing external dependency through the expansion of the internal energy market. Expanding the internal energy market to Turkey, an important transit country for gas, reduces external dependency risks for gas imports to the EU. A similar rationale applies to Ukraine, since 2010 a member of the Energy Community.

investments. As a result some countries may face considerable difficulties and costs in keeping a substantial and viable energy sector necessary to guarantee national energy security in the long term.⁷⁶

The scope of political pressure on EU energy market regulation will most likely depend on the political salience and seriousness of the national energy security concerns that may develop in the coming years.⁷⁷ In the course of that process, some Member States may simply call for EU energy market regulation to permit specific and limited political interventions into their domestic energy markets. However, in case of serious energy security concerns and strong domestic political pressure, Member States may rethink the economic and political justifications for electricity and gas liberalization. This would fundamentally affect the political legitimacy and, thus, the certainty and stability of the current EU energy market regulation (chapter 6). In the best case, it would lead to a gradual change to the public policy approach, which so far guided the EU's energy market regulation. In case Member States may not be able to agree on altering the public policy approach, doubts on the certainty and stability of the EU's energy market regulation may emerge. By affecting a key pillar of the internal energy market, such doubts may not only distort the investment environment but also the performance of the internal energy market as well as increase systemic risk.

10.4 INTERNAL ENERGY MARKET AND SYSTEMIC RISK

With increasing interconnection capacities among Member States, which permits for price-coupling between different countries, national electricity and gas markets are expected to consolidate into a single market (COM 2010a: 4). That process will increase the relevance of systemic risk, which is inherent to the internal energy market. It may be understood as a failure or collapse of the system, which may cause massive energy price distortions and, in the worst case, a full or partial collapse of energy trade in the EU.⁷⁸ It is a phenomenon that has been witnessed in financial and capital markets in the past, most recently in the global

⁷⁶ That problem applies not only to the Baltic States. Portugal faces a similar situation, which is due to its dependency on electricity imports from Spain. A strategic government project aimed at lowering Portugal's dependency on expensive Spanish electricity is currently underway. It relies on expanding Portugal's renewable power supply base. While due to its geographical location Portugal is in an excellent position for wind and photovoltaic power generation, it requires public support and funding to attract related investments.

⁷⁷ Changes to EU energy market regulation would affect the development of the internal energy market and it can be expected to face strong resistance by the Commission.

⁷⁸ The notion of systemic risk lacks a common definition, which makes it usually a difficult concept to employ. In this study, we take a very basic approach to it. The approach is influenced by the author's own professional experience during the global financial crisis of 2007/2008.

financial crisis from 2007 to 2008. Commonly, the effects of systemic risk are unexpected and often seem at first glance irrational. However, with the benefit of hindsight, they are usually the result of individually rational behavior exacerbated by information asymmetries and institutional factors, culminating into the potential or effective collapse of a market system. As a consequence, in the context of systemic risk regulatory failure is not far and is often identified as a key element. Depending on the stage of energy market integration in the EU, massive price distortion or a partial collapse of the internal energy market may bear huge social and economic costs for Member States.

The ERGEG representing the energy regulators of the EU Member States (chapter 5.2.3) has recently provided some comments on the issue of systemic risk. It took place in the context of making energy trading subject to EU financial regulation—in effect, the EU's Markets in Financial Instruments Directive (MiFID) (ERGEG 2011). According to the ERGEG, electricity and gas trading pose a lower systemic risk compared to trading in financial products. The ERGEG (2011: 3) argues that physical delivery, which characterizes electricity or gas trading, to a certain extent mitigates systemic risk. However, despite this, the ERGEG (2011: 19) admits that the actual scope to which energy markets are prone to systemic risk remains unclear. In addition to the specificities of energy trading, the ERGEG's conclusion seems to be influenced by an additional concern. Mitigating systemic risk by making energy trading subject to MiFID increases the regulatory burden of energy market participants. This may negatively affect competition in electricity and gas markets (ERGEG 2011: 7). In that context, the ERGEG opted in favor of competition and against increasing supervisory powers and prudential regulation for energy trading.

Nevertheless, financial history tells us that the increasing complexity of markets and the growing use of financial products, often misunderstood initially, contributed to systemic risk in the past. In that respect, the internal energy market is unlikely to be different from financial markets. Another argument advanced by the ERGEG for lower systemic risk points to the limited amount of market players representing energy industry professionals. In that context, the ERGEG may be right in its assessment and the limited number of market players may reduce systemic risk in electricity and gas markets as it increases informational transparency.⁷⁹

⁷⁹ However, one could also argue that the lower the number of market players, the more serious a particular event or action of a market player may affect the whole market and trigger market failure.

However, with regard to the internal energy market, systemic risk may also originate from the main participants of the internal energy market, which are the Member States themselves. Even if we can *prima facie* speak at one point of a single energy market, it will *de facto* remain based on national energy markets. In that context, Member States may (unintentionally) contribute to systemic risk as they retain, thanks to their sovereignty, the political ability to intervene in the performance of their national energy markets.

Any governmental intervention in a national market can have repercussions for the performance of the rest of the internal energy market. However, even without explicit action the mere ability of a Member State to intervene may alter the expectations of energy market participants and, thus, affect the performance of the internal energy market. Under certain circumstances, instances of a direct or (probably more important) anticipated state intervention may trigger price distortions and, in the worst case, partial disruption of physical trading in the internal energy market. This may put the internal energy market or parts of it on the brink of collapse. Such an event may be caused by circumstances involving social, economic and political dimensions but so far unknown. The reasons Member States may interfere in energy markets and the underlying reason for such far-reaching effects are more interesting.

Once more the insights derived from the case studies are relevant (chapter 9.4). As we have seen, compliance with EU energy market regulation is determined by the national energy security interests of the Member States. While EU energy market integration and regulation reflects to some degree a shift in energy policymaking from the national to the EU level, the ultimate political responsibility for policy and regulatory failure and, thus, energy security remains with the Member States. As a consequence, the regulatory architecture provided by the EU for the internal energy market carries to some degree the grain for political instability. This can be expected to be acknowledged by energy market participants and influence their behavior, which may in sum culminate in price distortion or a partial collapse of the internal energy market.

As Member States remain sovereign entities, the risk of state intervention in the energy market cannot be eliminated. However, precautions can be taken to mitigate the systemic risk emanating from Member States. As earlier mentioned, it may not be tangible state interventions that would negatively affect the performance of the internal energy market. Member States may clearly anticipate the wider consequences of their behavior. The mere expectations by market participants in that regard are more important. Assuming that the

perceived certainty and stability of EU energy market regulation influences the behavior of market participants, the most effective way to mitigate systemic risk emanating from Member States is to ensure that the EU regulatory architecture for the internal energy market benefits from a high level of political legitimacy. The latter also means acknowledging the role of national energy security interests, as long as they remain a political reality and a key domestic factor driving the behavior and decisions of Member States.

11 CONCLUSIONS

How did the EU gain influence on energy liberalization in Member States and which factors determined its scope? Guided by these research question (chapter 1.1.) this study has investigated a particular phenomenon in the context of European Integration, the influence of the EU on the economic organization of electricity and gas supply in its Member States. Despite the seemingly specific focus on energy liberalization, the research question required us to investigate the expansion and development of the EU's electricity and gas market regulation (chapters 5 and 6), and provided us, based on an analysis of the EU's influence on energy liberalization in case studies in the Baltic Sea Region (chapter 8), with general insights on the effectiveness of EU energy market regulation on the national level (chapter 9), in particular, the role played by national political interests and energy security concerns. In this chapter we summarize the main findings concerning the research question (chapter 11.1) and discuss their practical impact on the certainty and stability of EU energy market regulation in the light of the more active EU role in regulating for competition and upcoming new energy security challenges (chapter 11.2). The discussion is important as it concerns the effectiveness of energy market regulation as a key pillar sustaining the internal energy market. Finally, we conclude this chapter by discussing the relevance of this study as a contribution to a better understanding of European Integration (chapter 11.3). As this chapter builds and elaborates essentially upon insights drawn in the course of this study, it may to some extent be of repetitive character. However, this is unavoidable to provide readers skipping directly to the conclusions part with an overview of the key insights drawn in this study.

11.1 EU INFLUENCE ON ENERGY LIBERALIZATION

EU Gaining Influence on Energy Liberalization

The EU's influence on energy liberalization reflects its expansion into electricity and gas market regulation. Starting in the mid-1980s, the expansion was driven by the Commission, which interpreted the political mandate for completing the internal market, provided by the SEA, to also include electricity and gas (chapter 5.2). Energy liberalization was a prerequisite and the logical consequence of establishing, or, in the words of the Commission, completing the internal energy market, which at that time was almost non-existent. The EU's ambitions

faced resistance not only as a result of a weak legal basis, and implicitly an unclear political mandate, but also due to strong political opposition by Member States. The shift from a planned economy to a competitive market approach for electricity and gas supply (chapter 2.3.3), which energy liberalization entailed, meant for almost all countries a fundamental shift in public policy. However, in the first half of the 1990s national policymakers increasingly believed in the economic and political justifications for energy liberalization (chapter 2.3). Along with institutional changes within the EU, strengthening of the Commission vis-à-vis the Member States, it paved the way for the adoption of the first Energy Legislation Package (ELP) in 1996/1998 (chapter 5.2.4). This permitted the EU to step into energy market regulation and prescribe Member States a competitive market approach to electricity and gas supply and, thus, require those countries to liberalize their energy sector. However, with the first ELP Member States provided the EU only with an ad-hoc political mandate to exert energy market regulation on a limited legal basis (5.3.1). An effort by the European Parliament at the same time to introduce an energy article in EU primary legislation failed because of the resistance from the Member States. Nevertheless, EU energy market regulation evolved based on EU secondary legislation, with two succeeding ELPs that can be considered as key milestones in the expansion of EU energy market regulation (chapter 6.1 and 6.2). They eventually led to the establishment of new EU-level regulatory institutions for the energy market, such as the ERGEG and its successor ACER as well as the ENTSOs (chapter 6.2.3). As Member States started to establish on the national level competitive market environments for electricity and gas supply, the evolving EU energy market regulation was supplemented by the application of EU competition rules on the energy sector (chapter 6.3). With that substantial expansion of the EU into energy market regulation and ongoing energy market integration, the need to put EU regulatory action on a more solid legal basis increased. A second attempt to put EU energy market regulation on a firm legal basis succeeded with the adoption of the Treaty of Lisbon in 2009 (chapter 5.3). The newly created energy provision in EU primary legislation did not only clarify the legal basis for the internal energy market but, equally important, also established explicitly substantial legal limits to the influence of EU energy market regulation on Member States for the first time.

That highlights the thread that characterized the EU's expansion into electricity and gas market regulation, which is the Member States' wish to remain in the driving seat with regard to the development of EU energy market regulation and retain a certain degree of autonomy in determining national energy policy. According to the new energy provision the areas of national autonomy concern: determining the general structure of energy supply and the choice

concerning the sources of energy. Although stipulated as explicit legal statements, their content remains to be substantiated and clarified. This will be interesting as EU energy market regulation by prescribing competitive energy markets can be expected in the medium to long term to contribute to significant changes on the energy supply structure and the source of energy of some Member States (chapter 10.3). Despite the support of Member States for the internal energy market, which treats electricity and gas as simple commodities, the young EU energy provision indicates that Member States still perceive energy supply to be of national political interest. In that regard, it seems likely that national energy security concerns will be key determinants to the future development of EU energy market regulation. This is supported by the role that national interests and energy security played in determining the EU's influence on energy liberalization (chapter 9.4).

Role of the EU in Energy Liberalization

At first glance, the investigated case studies in the Baltic Sea Region (chapter 8) indicated that the EU seems to have influenced energy liberalization in all Member States as they transposed and implemented relevant EU electricity and gas market legislation. As a consequence, one could simply conclude that the EU was a driving force behind energy liberalization in all Member States, except for Sweden and Finland which started liberalization earlier. However, in effect, the influence of the EU on shaping national energy market regulation is more complex than a first glance would suggest.

A closer look at the reasons countries differed in the speed and scope of energy liberalization shows that compliance with EU energy market legislation was determined by the national political interest of Member States on energy liberalization, which in all cases was influenced by a country's energy security situation (chapter 9.4). In that context, the EU's influence on energy liberalization was determined by a Member State's expectations with regard to the effect that complying with EU energy market regulation would have for its electricity and gas supply system. In some countries such expectations reflected the economic benefits that energy liberalization and a competitive market environment were supposed to provide. In other countries complying with EU energy market regulation was driven by additional or different expectations. In those cases, complying with EU energy market regulation was expected to support particular national political goals, not least in the context of enhancing a Member State's energy security situation.

In scientific terms, the EU's influence seems to have been in most cases a necessary but insufficient factor explaining energy liberalization in Member States. It was a necessary factor as it was usually employed to overcome domestic political resistance (chapter 9.1). It was an insufficient factor as additional factors determined the transposition and implementation of EU energy market legislation. Those factors were the existence or absence of economic and political justifications for energy liberalization as well as the energy security situation of a country (chapter 9.2).

The investigation of EU influence on energy liberalization showed that, although energy market integration is often framed as European Integration, the process seems to be less driven by a European Idea as the adoption of ELPs at first glance may suggest, but more by specific and sometimes different national interests. The central role that national political interests and energy security concerns played in determining the EU's influence on energy liberalization carries important implications for the future development and, especially, for ensuring the certainty and stability of the EU's regulatory architecture for the internal energy market.

11.2 IMPLICATIONS FOR EU ENERGY MARKET REGULATION

Challenges to Certainty and Stability of EU Energy Market Regulation

The discussion of the expansion of the EU into electricity and gas market regulation shows that energy supply remains an important national policy area for Member States. Despite the fact that energy policy shifted to some degree from the national to the EU level, Member States seem to wish to retain a certain degree of autonomy in determining their national energy policies (chapter 11.1), not least as they are responsible for national energy security. In other words, the limits of EU influence in terms of energy market regulation seem to be reached where national energy security interests are affected. Such a situation may result from a more active role of the EU in regulating for competition in the form of manufacturing competitive energy markets in Member States (chapter 10.1). Besides causing political, economic and legal concerns, such behavior may negatively impact national energy security and interfere with a Member State's ambition to provide energy security. National energy security concerns may also be understood as the result of the competitive market environment prescribed by EU energy market regulation and the limits it sets to the ability of Member

States to tackle them (chapter 10.3). Those instances illustrate how the EU's regulatory framework for the internal energy market may in the medium to long term conflict with the responsibility of Member States to guarantee energy security on their territory. This may negatively affect the political legitimacy of the EU's energy market regulation.

Conceptualizing the EU as a regulatory agency, EU influence is politically legitimized by the effect that the regulatory framework has on the national level (chapter 3.2). From investigating the EU's influence on energy liberalization, we have learned that the effectiveness of EU energy market regulation is determined by national interests and energy security concerns as they provide for the political legitimacy of EU influence (chapter 11.1). In case EU energy market regulation negatively affects the energy security situation in Member States, its political legitimacy on the national level can be expected to weaken. This would damage the certainty and stability of the EU energy market regulation, which sustains the internal energy market. Doubts by market participants over the certainty and stability of EU energy market regulation may have serious consequences, especially in a competitive market environment (chapter 10.4). Besides shortening the planning horizon it may distort energy investments and energy trade in the internal energy market. Under certain circumstances, doubts of market participants on the political stability of EU energy market regulation may exacerbate the systemic risk emanating from Member States and expedite a full or partial collapse of energy trading and, thus, the internal energy market (chapter 10.4). Depending on the progress of energy market integration this can have serious economic consequences for some Member States, if not for all. As a consequence, the main challenge in the context of devising EU energy market regulation is to provide for a certain and stable regulatory framework for the internal energy market, taking into account the primacy of national energy security interests. This is particularly important as long as the responsibility for policy and regulatory failure remains with the Member States.

Ensuring Certainty and Stability of EU Energy Market Regulation

Thinking of the EU as a regulator agency, its political legitimacy is derived by the effect that the regulation that it embodies and enforces has on the national level. This already provides the solution to ensure the certainty and stability of the EU's regulatory framework for the internal energy market. The framework has to provide for enough flexibility to accommodate for those national factors that determined the EU's influence on energy liberalization in Member States. Those are in addition to specific national interests, in particular, national

energy security concerns. In addition, in the light of a more active role of the EU in regulating for competition and new energy security concerns the certainty and stability of the EU's regulatory framework may benefit from substantial clarification of the young EU energy legal provision with regard to the autonomy of Member States in determining their national energy supply structure and sources of energy. Clarifying the application of EU competition rules with regard to the energy sector belongs in the same context. Such clarification should take place before any political tensions between the Member States and the Commission arise (chapter 10.2.1). All those measures reduce the political and legal uncertainty in the energy sector in the EU and Member States. The measures have important practical implications as they provide the basis for a stable planning horizon in the energy sector and, thus, benefit energy security. Finally and most importantly, a certain and stable EU energy market regulation mitigates the systemic risk emanating from Member States in an increasingly integrated and interdependent European energy market.

11.3 TOWARDS A BETTER UNDERSTANDING OF EUROPEAN INTEGRATION

The investigation of EU influence on energy liberalization directed our attention to a particular part of European Integration. It is the part that follows political decisions led by Member States and the Commission oft hailed as successful and key steps in the context of European Integration. In that respect, this study highlights the fact that European Integration consists of two phases. While the first phase accentuates the European Idea guiding the European Integration process, a closer look at the second phase draws our attention to the role that national interests play in determining the process. In that regard, this study reminds us that European Integration is a complex phenomenon that involves specific political realities in Member States and particular national interests.

Investigating the second phase provides us with a differentiated understanding of European Integration as it requires us to address the scope and limits of EU influence. It can provide us with important insights to the effectiveness of EU regulatory frameworks applied to particular policy areas or issues. This is highly important in those instances where policy areas subject to European Integration are extremely complex and where a collapse of the relevant regulatory framework provided by the EU would entail huge social and economic costs.

This study points to the practical relevance of conceptualizing the EU as a regulatory agency. It follows the understanding that the EU's political legitimacy in exerting influence on a policy area is based on the effect that the regulation that the EU embodies and enforces has on

the national level. But importantly, this study supplements that understanding by calling for more attention to those factors on the national level that determine the political legitimacy of EU influence and, thus, determine the certainty and stability of the EU's regulatory frameworks. Thereby, taking into account national interests when devising regulation means not giving up on the European Idea. On the contrary, as long as responsibility for policy and regulatory failure remains with the Member States, it is a necessity for safeguarding the achievements of the European Integration gained so far, and in order to protect the credibility of the European Idea in the long term.

REFERENCES

General Literature

- ABROMEIT, Heidrun (1998): *Democracy in Europa: Legitimising Politics in a Non-State Polity*. New York und Oxford: Berghahn Books.
- ANDERSEN, Svein S. and ELIASSEN, Kjell, eds. (2001): *Making Policy in Europe*. London: SAGE Publications.
- ANDERSEN, Svein S. (2001): Energy Policy: Interest Interaction and Supranational Authority. In ANDERSEN, Svein S. and ELIASSEN, Kjell, eds. (2001): *Making Policy in Europe*. London: SAGE Publications, 106-123.
- ANDERSEN, Svein S. und Sitter, Nick (2007): Rediscovering politics: regulatory variation and fuzzy liberalization in the single European energy market. Paper presented at the *Political Studies Association Conference* at the Norwegian School of Management in Oslo, 13 April, 2007.
- ARENTSEN, Maarten and KÜNNKEKE Rolf, eds. (2003): *National reforms in European gas*. Elsevier Global Energy Policy and Economics Series.
- ARENTSEN, Maarten and KÜNNKEKE Rolf, eds. (2003): National Models in the Emerging European Gas Market. In ARENTSEN, Maarten and KÜNNKEKE Rolf, eds. (2003): *National reforms in European gas*. Elsevier Global Energy Policy and Economics Series, 45-61.
- ARENTSEN, Maarten (2004): Politics and Regulation of Gas in Europe. In: FINON, Dominique, MIDTTUN, Atle, eds. (2004): *Reshaping European Gas and Electricity Industries, Regulation, Markets and Business Strategies*. Elsevier Global Energy Policy and Economics Series, 69-109.
- AXELROD, Regina S. (1996): The European Energy Charter Treaty, Reality or Illusion? *Energy Policy* 24:6, 497-505.
- BALDWIN, Robert and CAVE, Martin (2002): *Understanding Regulation, Theory Strategy, and Practice*. Oxford: Oxford University Press.
- BANKS, Ferdinand E. (2007): World Scientific Series on Energy and Resources Economics – Vol. 2: *The Political Economy of World Energy, An Introductory Textbook*. World Scientific Publishing: Singapore.
- BARTLE, Ian (2006): Europeans outside the EU: Telecommunications and electricity reform in Norway and Switzerland, *Governance: An International Journal of Policy, Administration, and Institutions*, Vol. 19, No. 3, 407-436.
- BAUBY, Pierre and VARONE, Frédéric (2007): Europeanization of the French electricity policy: four paradoxes, *Journal of European Public Policy* 14:7, 1048-1060.

- BEDARFF, Hildegard (1997): *Die Wirkung internationaler Institutionen auf Energie- und Umweltpolitik, Weltbank, EU und Europäisches Energiechartaregime in Polen und der Tschechischen Republik*. München: LIT Verlag.
- BOMBERG, Elizabeth and PETERSON, John (2000): Policy Transfer and Europeanization: Passing the Heineken Test? *Queen's Papers on Europeanization* No. 2/2000. Online available: <http://www.qub.ac.uk/schools/SchoolofPoliticsInternationalStudiesandPhilosophy/Research/PaperSeries/EuropeanisationPapers> [20.03.08].
- BÖRZEL, Tanja A. (1999): Towards Convergence in Europe? Institutional Adaptation to Europeanization in Germany and Spain, *Journal of Common Market Studies* 39:4, 573-596.
- BRAITHWAITE, John (2008): *Regulatory capitalism, How it works, ideas for making it work better*. Cheltenham UK: Edward Elgar.
- BULMER, Simon and DOLOWITZ, David (2007): *Policy transfer in European Union governance, Regulating the Utilities*. New York: Routledge.
- BULMER, Simon (2008): Theorizing Europeanization. In: GRAZIANO, Paolo and VINK, Maarten P., eds. (2008): *Europeanization: New research agendas*. New York: Palgrave Macmillan, 46-58.
- CAMERON, Peter D., ed. (2005): *Legal Aspects of EU Energy Regulation, Implementing the New Directives on Electricity and Gas Across Europe*. Oxford: Oxford University Press.
- CAMERON, Peter D., ed. (2007): *Competition in Energy Markets, Law and Regulation in the European Union*. Oxford: Oxford University Press.
- CEDERMAN, Lars-Erik (2001): Nationalism and Bounded Integration. What it Would Take to Construct a European Demos, *European Journal of International Relations* 7, 139-174.
- CHABRELIE, Marie-Françoise (2004): Gas Price Indexation and Strategies: A European Market Perspective. 2nd Asia Gas Buyers' Mumbai, India Summit, 1-3.02.2004. Online available: <http://www.ficci.com/media-room/speechespresentations/2004/feb/feb3-chibrelie-2.pdf> [03.08.06].
- CLAES, Dag Harald (2002): The process of Europeanization - the case of Norway and the internal energy market, *ARENA Working Papers* WP 02/12. Online available: http://www.arena.uio.no/publications/working-papers2002/papers/wp02_12.htm [19.01.08].
- CLEVELAND, Cutler J. et al, eds. (2004): *Encyclopaedia of Energy*. Elsevier Science & Technology Books.
- COEN, David and THATCHER, Mark (2001): *Utilities Reform in Europe*. Huntington, New York: Nova Science Publishers.

- COPPENS, François, VIVET, David (2004): Liberalization of Network Industries: Is Electricity an Exception to the Rule? In National Bank of Belgium, Working Papers – Document Series. NBB Working Paper No. 59, September 2004.
- DAHL, Carol A. (2004): *International Energy Markets, Understanding Pricing, Policies, and Profits*. Tulsa, Oklahoma USA: Penn Well.
- DE HAUTECLOCQUE, Adrien (2009): Legal Uncertainty and Competition Policy in European Deregulated Electricity Markets: the Case of Long-term Exclusive Supply Contracts, *World Competition* 32:1, 91-112.
- DE PAOLI, Luigi, ed. (2001): *The Electricity Industry in Transition, Organization, Regulation and Ownership in EU Member States*. Milano: FrancoAngeli.
- DE VANY, Arthur, WALLS, W. David (1995): *The Emerging New Order in Natural Gas, Markets versus Regulation*. London: Quorum Books.
- DECKER, Frank (2002): Governance Beyond the Nation-state. Reflections on the Democratic Deficit of the European Union, *Journal of European Public Policy* 9, 256-272.
- DUBASH, Navroz K. (2004): Electric Power Reforms: Social and Environmental Issues. In CLEVELAND, Cutler J. et al., eds. (2004): *Encyclopedia of Energy*, 255-266.
- EBERLEIN, Burkhard, GRANDE, Edgar (2005): Beyond delegation: transnational regulatory regimes and the EU regulatory state, *Journal of European Public Policy*, 12: 1, 89-112.
- EBERLEIN, Burkhard (2005): Regulation by Cooperation: The Third Way in Making Rules for the Internal Energy Market. In CAMERON, Peter D., ed. (2005): *Legal Aspects of EU Energy Regulation, Implementing the New Directives on Electricity and Gas Across Europe*. Oxford: Oxford University Press, 59-88.
- EINHORN, Michael A. (1994): *From Regulation to Competition: New Frontiers in Electricity Markets*. London: Kluwer Academic Publishers.
- EEROLA, Hannu and SKARI, Oksanen (2001): Organization and Regulation of the Electricity Supply Industry in Finland. In DE PAOLI, Luigi, ed. (2001): *The Electricity Industry in Transition, Organization, Regulation and Ownership in EU Member States*. Milano: FrancoAngeli, 165-208.
- EHLERMANN, Claus-Dieter (1994): Role of the European Commission as Regards National Energy Policies. *Energy and Natural Energy Policies* 12:3, 342-353.
- EISING, Rainer and JABKO Nicolas (2001): Moving targets, national interests and electricity liberalization in the European Union, *Comparative Political Studies*, 34:7, 742-767.
- EISING, Rainer (2002): Policy learning in embedded negotiations: Explaining EU electricity liberalization, *International Organization*, 56:1, 85–120.
- ESTRADA, Javier et al. (1988): *Natural Gas in Europe, Markets, Organization and Politics*. London: Pinter Publishers.

- EVANS, Peter C. (2002): *Liberalizing Global Trade in Energy Services*. American Enterprise Institute (AEI) Studies on Services Trade Negotiations. Washington: AEI Press. Online available: http://www.aei.org/docLib/20040218_book154.pdf [14.11.2010].
- FALECKI, Arkadiusz (2008): Model of competition in the energy sector. CSAiR and URE seminars. Report. Online available: <http://www.cars.wz.uw.edu.pl/konferencje/pdf/Jastrz848.pdf> [04.03.2011].
- FIEBIGER, Gernot (2001): Verweigerung des Marktzuganges für Elektrizitätsfirmen aus Drittstaaten durch Technik-, Gesundheits-, und Umweltklauseln am Beispiel des § 13 ELWOG. Seminararbeit, 2001 Universität Wien. Online available: <http://textfeld.ac.at/download/72.pdf>
- FINON, Dominique, MIDTTUN, Atle, eds. (2004): *Reshaping European Gas and Electricity Industries, Regulation, Markets and Business Strategies*. Elsevier Global Energy Policy and Economics Series.
- FOLLESDAL, Andreas, HIX, Simon (2005): Why There is a Democratic Deficit in the EU: A Response to Majone and Moravcsik, *European Governance Papers* (EUROGOV), No. C-05-02. Online: <http://www.connex-network.org/eurogov/pdf/egp-connex-C-05-02.pdf> [20.03.08].
- GABLER (2004): *Gabler Wirtschaftslexikon*, E-J. Wiesbaden: Betriebswirtschaftlicher Verlag Dr. Th. Gabler/GWV Fachverlage GmbH.
- GENOUD, Christophe, FINGER, Matthias (2004): Electricity Regulation in Europe. In: FINON, Dominique, MIDTTUN, Atle, eds. (2004): *Reshaping European Gas and Electricity Industries, Regulation, Markets and Business Strategies*. Elsevier Global Energy Policy and Economics Series, 29-67.
- GLANCHANT, Jean-Michel, DE HAUTECLOCQUE, Adrien (2010): Long-term energy supply contracts in European competition policy: Fuzzy not crazy, *EUI Working Papers*, RSCAS 2009/06, Robert Schuman Centre for Advanced Studies, Loyola de Palacio Program on Energy Policy.
- GOLDEMBERG, José (2004): Development and Energy, Overview. In: CLEVELAND, Cutler J. et al., eds. (2004): *Encyclopedia of Energy*, 800-807.
- GRAZIANO, Paolo and VINK, Maarten P., eds. (2008): *Europeanization: New research agendas*. New York: Palgrave Macmillan.
- GRUBB, Michael et al. (2006): Diversity and security in UK electricity generation: The influence of low-carbon objectives, *Energy Policy* 34:18, 4050-4062.
- HÉRITIER, Adrienne, KNILL, Christoph and MINGERS, Susanne (1996): Ringing the Changes in Europe. *Regulatory Competition and the Transformation of the State*. Berlin: De Gruyter.
- HOLZINGER, Katharina et al., eds. (2005): *Die Europäische Union, Theorien und Analysekonzepte*. UTB Verlag Ferdinand Schöningh, Paderborn.

- HOLZHACKER, Ronald and HAVERLAND, Markus, eds. (2006): *European research reloaded: Cooperation and integration among Europeanized states*. Heidelberg: Springer.
- HANCHER, Leigh, DE HAUTECLOCQUE, Adrien (2010): Manufacturing the EU Energy Markets: The Current Dynamics of Regulatory Practice, *EUI Working Papers*, RSCAS 2010/01, Robert Schuman Centre for Advanced Studies, Loyola de Palacio Program on Energy Policy.
- HALL, Peter A. (1989): *The Political Power of Economic Ideas*. Princeton, New Jersey: Princeton University Press.
- HALL, Peter A. and TAYLOR, Rosemary C.R. (1996): Political Science and the three Institutionalisms. *Political Studies* 44:5, 936-957.
- HARVEY, David (2005): *A Brief History of Neoliberalism*. Oxford: Oxford University Press.
- HAVERLAND, Markus (2005): Does the EU cause domestic developments? The problem of case selection in Europeanization research, *European Integration Online Papers* (EIOP), Vol. 9, No. 2. Online available: <http://eiop.or.at/eiop/texte/2005-002a.htm> (19.01.08).
- HAVERLAND, Markus (2006): Does the EU cause domestic developments? Improving case selection in Europeanization research, *West European Politics* 29:1, 134-146.
- HAVERLAND, Markus (2008): Methodology. In: GRAZIANO, Paolo and VINK, Maarten P. (eds.) (2008): *Europeanization: New research agendas*. New York: Palgrave Macmillan, 59-72.
- HÄUSLER, Jürgen (2002): *Energiepolitik*, in: NOHLEN, Dieter (2002): *Kleines Lexikon der Politik*. München: C.H.Beck, 94-99.
- HERDEGEN, Matthias (2010): *Europarecht*. München: Verlag C.H. Beck.
- HÉRITIER, Adrienne et al., eds. (2001): *Differential Europe. New Opportunities and Restrictions for Member-State Policies*. Lanham: Rowman and Littlefield, 2257-294.
- HÉRITIER, Adrienne, KNILL, Christoph (2001): Differential Responses to European Policies: A Comparison. In HÉRITIER, Adrienne et al., eds. (2001): *Differential Europe. New Opportunities and Restrictions for Member-State Policies*. Lanham: Rowman and Littlefield, 2257-294.
- HÉRITIER, Adrienne (2001): "Differential Europe: The European Union Impact on National Policy-making", in: HÉRITIER, Adrienne et al. (eds.) (2001): *Differential Europe. The European Union Impact on National Policymaking*. Lanham: Rowman & Littlefield, 1-21.
- HÉRITIER, Adrienne (2005): Europeanization Research East and West: A Comparative Assessment. In Schimmelfennig und Sedelmeier, eds. (2005): *The Europeanization of Central and Eastern Europe*. Ithaca and London: Cornell University Press.

- HIRSCHHAUSEN von, Christian (2002): *Modernizing Infrastructure in Transformation Economies, Paving the Way to European Enlargement*. Cheltenham UK: Edward Elgar Publishing Limited.
- HJALMARSSON, Lennart (2001): Organisation and Regulation of the Electricity Supply Industry in Sweden. In DE PAOLI, Luigi, ed. (2001): *The Electricity Industry in Transition, Organization, Regulation and Ownership in EU Member States*. Milano: FrancoAngeli, 477-527.
- HÖRETH, Marcus (1999): No Way out for the Beast? The Unsolved Legitimacy Problem of European Governance, *Journal of European Public Policy* 6, 249-268.
- HUGHES, Larry (2009): The four “R”s of energy security. *Energy Policy* 37 (2009), 2459-2561.
- JANKAUSKAS, Vidmantas (2006): Development of Electricity Market in Lithuania and in the Baltics. Online available: <http://www.regula.lt/en/publications/other-publications/Developmen...the%20Baltics.pdf> [10.01.2011].
- JOHNSTON, Angus (1999): Maintaining the Balance of Power: Liberalization, Reciprocity and Electricity in the European Community, *Journal of Energy and Natural Resources Law* 17 (121). Online available: <http://www.dundee.ac.uk/cepmlp/journal/html/vol4/vol4-9.html> [10.12.2010].
- JORDANA, Jacint, LEVI-FAUR, David, eds. (2004): *The Politics of Regulation, Institutions and Regulatory Reforms for the Age of Governance*. Cheltenham UK: Edward Elgar.
- JORDANA, Jacint et al. (2006): The limits of Europeanization: Regulatory reforms in the Spanish and Portuguese telecommunications and electricity sectors, *Governance: An International Journal of Policy, Administration, and Institutions*, 19:3, 437–464.
- JOSKOW, Paul L. (2006): Introduction to electricity sector liberalization: Lessons learned from cross-country studies. In SIOSHANSI, Fereidoon Perry and PFAFFENBERGER, Wolfgang, eds. (2006): *Electricity market reform: An international perspective*. Elsevier Global Energy Policy and Economics Series.
- KARKKEINEN, S. and LAKERVI, E. (2001): Liberalization of electricity market in Finland as part of Nordic market, *IEEE Proceedings, Generation, Transmission, Distribution* 148:2, 194-199.
- KATZ, Richard S. (2001): Models of Democracy. Elite Attitudes and the Democratic Deficit in the European Union. *European Union Politics* 2:53-79.
- KERWER, Dieter (2001): Going through the Motions: The Modest Impact of Europe on Italian Transport Policy. In HÉRITIER, Adrienne et al., eds. (2001): *Differential Europe. New Opportunities and Restrictions for Member-State Policies*. Lanham: Rowman and Littlefield, 2257-294.
- KHIAR, Idir Laurent (2006): *Das Handeln der Europäischen Union im Bereich der Versorgungssicherheit mit Erdgas*. Lizentiatsarbeit der Philosophischen Fakultät der Universität Zürich.

- KHIAR, Idir Laurent (2007): Brennpunkt, Energiepolitik - Vergangene und zukünftige Entwicklungen auf EU-Ebene im Bereich der Versorgungssicherheit mit Erdgas, *European Law Reporter*. No.1, 1-6.
- KNILL, Christoph and LEHMKUHL, Dirk (1998): Integration by Globalization: The European Interest Representation of the Consumer Electronics Industry, *Current Politics and Economics in Europe* 8:2, 131-153.
- KNILL, Christoph and LEHMKUHL, Dirk (2002): The National Impact of European Union Regulatory Policy: Three Europeanization Mechanisms, *European Journal of Political Research* 41, 255-280.
- KOHL, Wilfried L. (2004): On National Security and Energy. In: CLEVELAND, Cutler J. et al., eds. (2004): *Encyclopedia of Energy*, 193-206
- KOHLER-KOCH, Beate and EISING, Rainer, eds. (1999): *The Transformation of Governance in the European Union*. Routledge, London.
- KOHLER-KOCH, Beate (1999): The Evolution and Transformation of European Governance. In: KOHLER-KOCH, Beate and EISING, Rainer, eds. (1999): *The Transformation of Governance in the European Union*. London: Routledge, 14-35.
- LADRECH, Robert (1994): Europeanization of Domestic Politics and Institutions: The Case of France, *Journal of Common Market Studies*, 32:1, 69-88.
- LAVRIJSSEN-HEIJMANS, Saskia, HANCHER, Leigh (2008a): European Regulators in the Network Sectors: Revolution or Evolution? *TILEC Discussion Paper* DP 2008-024, Tilburg University. Online available: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1162164 [13.08.2010].
- LAVRIJSSEN-HEIJMANS, Saskia, HANCHER, Leigh (2008b): Networks on track: From European Regulatory Networks to "European Regulatory Network Agencies", *Legal Issues of Economic Integration* 34: 1 (2008), 23-55.
- LEHMKUHL, Dirk (2008): Some Promises and Pitfalls of Europeanization Research. In: GRAZIANO, Paolo and VINK, Maarten P., eds. (2008): *Europeanization: New research agendas*. New York: Palgrave Macmillan, 337-353.
- LEVI-FAUR, David (2002): On the 'Net Impact' of Europeanization. The EU's telecoms and electricity regimes between the global and the national, *European Integration Online Papers (EIOP)*, 6:7. Online available: <http://eiop.or.at/eiop/texte/2002-007a.htm> [09.04.10].
- LEVI-FAUR, David (2004b): The limits of Europeanization: Regulatory reforms in the Spanish and Portuguese telecommunication and electricity sector, *European Integration Online Papers (EIOP)*, 9:10. Online available: <http://eiop.or.at/eiop/texte/2005-010a.htm> [19.01.08].
- LEVI-FAUR, David (2008): Regulatory Governance. In GRAZIANO, Paolo and VINK, Maarten P., eds. (2008): *Europeanization: New research agendas*. New York: Palgrave Macmillan, 102-114.

- LOUGHLIN, Martin and SCOTT, Coin (1997): The Regulatory State. In Patrick Dunleavy et al., eds. (1997): *Developments in British Politics Vol. 5*, Basingstoke: Macmillan, 205-19.
- LUTZ, Martin (2004): *Siemens und die Sowjetunion nach dem Ersten Weltkrieg*. Diplomarbeit, Universität Konstanz Fachbereich Geschichte und Soziologie. Online available: <http://nbn-resolving.de/urn:nbn:de:bsz:352-opus-23136> [19.07.2010].
- MAJONE, Giandomenico (ed.) (1990): *De-regulation or Re-regulation? Regulatory Reforms in Europe and the United States*. London: Pinter Publisher.
- MAJONE, Giandomenico (1994): The Rise of the Regulatory State in Europe, *West European Politics*, 17: 3, 77-101.
- MAJONE, Giandomenico (1997): From the positive to the regulatory state, Causes and consequences of Changes in the mode of governance, *Journal of Public Policy* 17: 2, 139-167.
- MAJONE, Giandomenico (1998): Europe's Democratic Deficit: The Question of Standards, *European Law Journal* 4:1, 5-24.
- MATTHES, Felix C. (2004): European Union Energy Policy. In Cleveland Cutler J. et al (eds.) (2004): *Encyclopaedia of Energy*. Elsevier Science & Technology Books, 557-567.
- MÄE, Andres (2007): Estonia's energy security and the European Union. In KASEKAMP, Andres, ed. (2007): *The Estonian Foreign Policy Yearbook, 2007*. Tallinn: Estonian Foreign Policy Institute.
- McGOWAN, Francis and WALLACE, Helen (1996): Towards a European regulatory state, *Journal of European Public Policy*, 3:4, 560-576.
- MEZ, Lutz (1997): The German Electricity Reform Attempts: Reforming Co-optive Networks. In MEZ, Lutz, MIDTTUN, Atle, THOMAS, Steve, eds. (1997): *European electricity systems in transition*. Elsevier Global Energy Policy and Economics Series, 231-252.
- MEZ, Lutz (2003): The Transformation of the German Gas Supply Industry. In ARENTSEN, Maarten and KÜNNKE Rolf, eds. (2003): *National reforms in European gas*. Elsevier Global Energy Policy and Economics Series, 213-243.
- MEZ, Lutz et al. (1997): Restructuring Electricity Systems in Transition. In MEZ, Lutz, MIDTTUN, Atle, THOMAS, Steve, eds. (1997): *European electricity systems in transition*. Elsevier Global Energy Policy and Economics Series, 3-12
- MEZ, Lutz, MIDTTUN, Atle and THOMAS, Steve, eds. (1997): *European electricity systems in transition*. Elsevier Global Energy Policy and Economics Series.
- MEZ, Lutz and MIDTTUN, Atle (1997): The Politics of Electricity Regulation. In MEZ, Lutz, MIDTTUN, Atle, THOMAS, Steve, eds. (1997): *European electricity systems in transition*. Elsevier Global Energy Policy and Economics Series, 307-331.

- MIDTTUN, Atle (1997): The Norwegian, Swedish and Finnish Reforms: Competitive Public Capitalism and the Emergence of the Nordic Internal Market. In MEZ, Lutz, MIDTTUN, Atle, THOMAS, Steve, eds. (1997): *European electricity systems in transition*. Elsevier Global Energy Policy and Economics Series, 89-130.
- MIDTTUN, Atle (1997): Electricity Policy Within the European Union: One Step Forward, Two Steps Back. In MEZ, Lutz, MIDTTUN, Atle, THOMAS, Steve, eds. (1997): *European electricity systems in transition*. Elsevier Global Energy Policy and Economics Series, 255-278.
- MIDTTUN, Atle (1997): Regulation Paradigms and Regulation Practice: a Comparative Review, in: MEZ, Lutz, MIDTTUN, Atle, THOMAS, Steve, eds. (1997): *European electricity systems in transition*. Elsevier Global Energy Policy and Economics Series, 279-306.
- MIDTTUN, Atle (2001): *European energy industry business strategies*. Elsevier Global Energy Policy and Economics Series.
- MITCHELL, Ronald and BERNAUER, Thomas (1998): Empirical Research on International Environmental Policy: Designing Qualitative Case-Studies. *Journal of Environment and Development* 7:1, 4-31.
- MORAVCSIK, Andrew (2002): In Defence of the “Democratic Deficit”: Reassessing Legitimacy in the European Union, *Journal of Common Market Studies*, Vol. 40.
- MORAN, Michael (2002): Review Article: Understanding the Regulatory State, *British Journal of Political Science*, 32:2, 391-413.
- NEUHOFF, Karsten, DE VRIES, Laurens (2004): Insufficient incentives for investment in electricity generation. *Utilities Policy* 12 (2004), 253-267.
- NEWBERY, David M. (1999): *Privatization, restructuring and regulation of network utilities*. London: The MIT Press.
- NEWBERY, David M. (2002): *Liberalizing Electricity Markets*. Paper supporting the presentation made at the 25th Annual IAEE International Conference at Aberdeen, 28 June 2002.
- NOHLEN, Dieter (2002): *Kleines Lexikon der Politik*. München: C.H.Beck.
- NOHLEN, Dieter and SCHULTZE, Rainer-Olaf, eds. (2005): *Lexikon der Politikwissenschaft Bd. 2: N-Z*. Verlag C.H.Beck oHG, München.
- NOWAK, Bartłomiej (2009): Challenges of Liberalization. The Case of Polish Electricity and Gas Sector. Munich Personal RePEc Archive. Online: <http://mpa.ub.uni-muenchen.de/23804> [.05.03.2011].
- NYE, David E. (2004): Electricity Use, History of. In: FINON, Dominique, MIDTTUN, Atle, eds. (2004): *Reshaping European Gas and Electricity Industries, Regulation, Markets and Business Strategies*. Elsevier Global Energy Policy and Economics Series, 177-190.

- Olejnik, Marcin (2005): Germany. In CAMERON, Peter D., ed. (2005): *Legal Aspects of EU Energy Regulation, Implementing the New Directives on Electricity and Gas Across Europe*. Oxford: Oxford University Press, 405-421.
- ØYSTEIN, Noreng (2006): *Crude Power, Politics and the Oil Market*. London: I. B. Tauris.
- PIERROS, Philip-Xenophon and NÜESCH, Sabina (2000): Trade in Electricity, Spot On. *Journal of World Trade* 34:4, 98-99
- PINEAU, Pierre-Olivier and HÄMÄLÄINEN Raimo P. (2000): A perspective on the restructuring of the Finnish electricity market, *Energy Policy* 28:192, 181-192.
- PINEAU, Pierre-Olivier (2003): International Trade Agreements and the Peruvian Electricity Sector. Document de Trabajo No 13, Ofielna de Estudios Economicos, Lima (Peru): *Organismo Supervisor de la Inversion en Energia* (OSINERG). Online available: http://www.osinerg.gob.pe/newweb/uploads/Estudios_Economicos/DT06-OEE-OSINERG.pdf [14.02.2010].
- PLOURDE, André (1990): Canadas International Obligations in Energy and the Free Trade Agreement with the US. *Journal of World Trade*, 24:5, 36-37.
- POPPER, Karl (1992): *The Logic of Scientific Discovery*. London: Routledge.
- PRIESTLAND, David (2009): *The Red Flag, A History of Communism*. New York: Grove Press.
- PRITZSCHE, Kai and KLAUER, Stefan (2005): German. In CAMERON, Peter D., ed. (2005): *Legal Aspects of EU Energy Regulation, Implementing the New Directives on Electricity and Gas Across Europe*. Oxford: Oxford University Press, 145-171.
- RADAELLI, Claudio M., PASQUIER, Romain (2008): Conceptual Issues. In GRAZIANO, Paolo and VINK, Maarten P., eds. (2008): *Europeanization: New research agendas*. New York: Palgrave Macmillan, 337-353.
- RADAELLI, Claudio M. (2003): The Europeanization of Public Policy. In FEATHERSTONE, Kevin and RADAELLI, Claudio M., eds. (2003): *The Politics of Europeanization*, Oxford: Oxford University Press, 27- 56.
- RADZKA, Beata (2006): Liberalization, privatization and regulation in the Polish electricity sector, *PIQUE, Privatization of Public Services and the Impact On Quality, Employment and Productivity*, Online available: http://www.pique.at/reports/pubs/PIQUE_CountryReports_Electricity_Poland_November2006.pdf [10.02.11].
- RICUPERO, Rubens (2003): *Energy and Environment Services: Negotiating Objectives and Development Priorities*, United Nations Conference on Trade and Development (UNCTAD) 2003, UNCTAD/DITC/TNCD/2003/3.
- RISE, Thomas, COWLES, Maria and CAPORASO, James (2001): Europeanization and Domestic Change: Introduction, in: COWLES, et al., eds.: *Transforming Europe: Europeanization and domestic change*. Ithaca and London: Cornell University Press, 1-20.

- ROTHKOPF, Michael (2007): Dealing with Failed Deregulation, What Would Price C Watts Do? *The Electricity Journal* Vol. 20, Issue 7, 1040-6190.
- RUNCI, Paul J. and DOOLEY James J. (2004): Research and development trends for energy, in Cleveland Cutler J. et al, eds. (2004): *Encyclopaedia of Energy*. Elsevier Science & Technology Books.
- SALERNO, Francesco Maria (2008): The Competition Law-ization of Enforcement: The Way Forward for Making the Energy Market Work? *EUI Working Papers*, RSCAS 2008/07, Robert Schuman Centre for Advanced Studies, Florence School of Regulation.
- SCHIMMELFENNIG, Frank, and SEDELMEIER, Ulrich, eds. (2005): *The Europeanization of Central and Eastern Europe*. Ithaca and London: Cornell University Press.
- SCHLESINGER, Philip (1999): Changing Spaces of Political Communication: The Case of the European Union, *Political Communication* 16, 263-279.
- SELIVANOVA, Yulia (2007): *The WTO and Energy, WTO Rules and Agreements of Relevance to the Energy Sector*. Geneva: International Center for Trade and Sustainable Development (ICTSD). Online available: <http://ictsd.org/downloads/2008/05/the20wto20and20energy.pdf> [12.02.2010].
- SERRALLE, Roberto (2006): Electric energy restructuring in the European Union: Integration, subsidiary and the challenge of harmonization, *Energy Policy* 34, 2542-2551.
- SIOSHANSI, Fereidoon Perry and PFAFFENBERGER Wolfgang, eds. (2006): *Electricity market reform: An international perspective*. Elsevier Global Energy Policy and Economics Series.
- SIOSHANSI, Fereidoon (2008): *Competitive electricity markets: Design, implementation, performance*. Elsevier Global Energy Policy and Economics Series.
- STERN, David I. (2004): Economic Growth and Energy. In CLEVELAND, Cutler J. et al., eds. (2004): *Encyclopedia of Energy*, 34-51.
- STREINZ, Rudolf (2003): *Europarecht*. Heidelberg: C.F. Müller Verlag.
- THOMAS, Stephen D. (2006): Electricity industry reforms in smaller European countries and the Nordic experience, *Energy Policy* 31, 788-801.
- TOBLER, Christa, ed. (2008): The Lisbon Treaty. Lisbon Treaty Meeting Summaries: Europa Institute of Leiden University, 19.03.2008. Online available: <http://media.leidenuniv.nl/legacy/lisbon-treaty-summaries.pdf> [12.04.2010].
- VAN DEN HOVEN, Adrian and FROSCHAUER, Karl (2004): Limiting regional electricity sector integration and market Reform: The Cases of France in the EU and Canada in the NAFTA region, *Comparative Political Studies*, 37:9, 1079-1103.
- VAN DER LINDE, Coby (2004): Study on Energy Supply Security and Geopolitics, Final Report. Den Haag: Clingendael International Energy Programme (CIEP). Online available: http://www.clingendael.nl/publications/2004/200401000_ciep_study.pdf [10.02.2011]

- VERDIER, Daniel and BREEN, Richard (2001): Europeanization and Globalization, Politics against the markets in the European Union, *Comparative political studies* 34: 3, 227-262.
- VINK, Maarten (2003): What is Europeanization? And Other Questions on a New Research Agenda, *European Political Science* 3:1 (2003), 63-74.
- WALZ, Rainer (2001): Organization and Regulation of the Electricity Supply Industry in Germany. In DE PAOLI, Luigi, ed. (2001): *The Electricity Industry in Transition, Organization, Regulation and Ownership in EU Member States*. Milano: FrancoAngeli, 267-313.
- WEILER, Joseph et al. (1995): European Democracy and Its Critique, Five Uneasy Pieces, *West European Politics*, 18:3, 4-39.
- WOO, C.K. et al. (2006): Costs of electricity deregulation. *Energy* 31, 747-768.
- ZARRILLI, Simonetta (2003): International Trade in Energy Services and the Developing Countries. In RICUPERO, Rubens (2003): *Energy and Environment Services: Negotiating Objectives and Development Priorities*, United Nations Conference on Trade and Development (UNCTAD) 2003, UNCTAD/DITC/TNCD/2003/3, 23-69. Online available: http://www.unctad.org/en/docs/ditctnkd20033_en.pdf [10.05.2010].

Documents and Interviews

European Union (EU)

- COM (85) 310 final of 14 June 1985: *Completing the Internal Market*, White Paper from the Commission to the European Council (Milan, 28-29 June 1985).
- COM (88) 174 final Vol. I of 3 May 1988: *The Main Findings of the Commission's Review of Member States' Energy Policies*, The 1995 Community Energy Objectives (Communication from the Commission).
- COM (88) 174 final Vol. II of 3 May 1988: *The Main Findings of the Commission's Review of Member States' Energy Policies*, The 1995 Community Energy Objectives (Communication from the Commission).
- COM (88) 238 final of 2 May 1988: *The Internal Energy Market* (Commission Working Document).
- COM (2009): *Baltic Energy Market Interconnection Plan (BEMIP)*, Final report of the HLG. Online available: http://ec.europa.eu/energy/infrastructure/events/doc/2009/2009_11_25_hlg_report_170609.pdf [05.01.2011].
- COM (2010a) 84 final of 11 March 2010: *Report on progress in creating the internal gas and electricity market* (SEC (2010) 251).

COM (2010b) 639 final 19 November 2010: *A strategy for competitive, sustainable and secure energy* (SEC (2010) 1346).

ERGEG (2010): *European Regulators' response to the European Commission's public consultation on "Review of the Markets in Financial Instruments Directive (MiFID)"* (2.02.2011). Online available: http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_PAPERS/Cross-Sectoral/2011/C11-FIS-23-04_MiFID_02-Feb-2011.pdf [08.03.2011].

ENTSO-E (2010): *ENTSO-E's pilot Ten-Year Network Development Plan (TYNDP)*. Online available: <https://www.entsoe.eu/resources/consultations/closed-consultations/tyndp> [20.02.2011]. (Since 26.06.2011 final version online available: https://www.entsoe.eu/fileadmin/user_upload/library/SDC/TYNDP/TYNDP-final_document.pdf [30.06.2011].

MONTI, Mario (2003): *Applying EU Competition Law to the newly liberalized energy markets*. World Forum on Energy Regulation, Rome 6 October 2003 (SPEECH/03/447)

RAPID (2005): *Opening up of energy markets: Ten Member States have still not transposed the new EU rules* (IP/05/319).

RAPID (2006): *Infringement procedures opened in the gas and electricity market sector, by Member State* (Memo/06/152).

RAPID (2009): *Energy infringements. Country fact sheets* (Memo/09/296).

International Energy Agency (IEA)

International Energy Agency (IEA) (1988): *Energy Policies and Programs of IEA Countries, 1987 Review*. Paris: Organization for Economic Cooperation and Development/IEA.

International Energy Agency (IEA) (1991): *Energy Policies of IEA Countries, 1990 Review*. Paris: OECD.

International Energy Agency (IEA) (1994): *Energy Policies of IEA Countries, 1993 Review*. Paris: OECD.

International Energy Agency (IEA) (1995): *Energy Policies of IEA Countries, 1994 Review*. Paris: Organization for Economic Cooperation and Development/IEA.

International Energy Agency (IEA) (1996): *Energy Policies of IEA Countries, 1996 Review*. Paris: OECD.

International Energy Agency (IEA) (1998): *Energy Policies of IEA Countries, Germany 1998 Review*. Paris: OECD.

International Energy Agency (IEA) (1999): *Energy Policies of IEA Countries, Finland 1999 Review*. Paris: OECD.

International Energy Agency (IEA) (2000): *Energy Policies of IEA Countries, Sweden 2000 Review*. Paris: OECD.

International Energy Agency (IEA) (2002a): *Making Energy Markets Work*. Paris: OECD.

International Energy Agency (IEA) (2002b): *Energy Policies of IEA Countries, 2002 Review*. Paris: OECD.

International Energy Agency (IEA) (2003): *Energy Policies of IEA Countries, Finland 2003 Review*. Paris: OECD.

International Energy Agency (IEA) (2004): *Energy Policies of IEA Countries, Sweden 2004 Review*. Paris: OECD.

International Energy Agency (IEA) (2007): *Energy Policies of IEA Countries, Finland 2007 Review*. Paris: OECD.

International Energy Agency (IEA) (2008): *Energy Policies of IEA Countries, Sweden 2008 Review*. Paris: OECD.

Note: All IEA documents are available online: www.iea.org

Case studies and other countries

British Office of the Gas and Electricity Markets (BOFGEM) (2010): *Project Discovery, Options for delivering secure and sustainable energy supply*. Consultation published by OFGEM, the gas and electricity regulator of Great Britain. Online available: http://www.ofgem.gov.uk/markets/whlmkts/discovery/Documents1/Project_Discovery_FebConDoc_FINAL.pdf [03.02.2010].

Estonian Competition Authority (ECA) (2005): *Electricity and gas market in Estonia, Report 2005*, Tallinn 2004. Online available: <http://www.konkurentsiamet.ee/file.php?14653> [04.01.2011].

Estonian Competition Authority (ECA) (2009): *Electricity and gas market in Estonia, Report 2008*, Tallinn 2009. Online available: <http://www.konkurentsiamet.ee/file.php?14656> [04.01.2011].

Estonian Competition Authority (ECA) (2010): *Electricity and gas market in Estonia, Report 2009*, Tallinn 2010. Online available: <http://www.konkurentsiamet.ee/file.php?15983> [04.01.2011].

Estonian Ministry of Economic Affairs and Communications (EMEAC) (2006): *Estonian Energy in Figures*. Online available: <http://www.mkm.ee/doc.php?174389> [20.11.2009].

Estonian Ministry of Economic Affairs and Communications (EMEAC) (2007): *Eesti energeetika arvudes, Estonian Energy in Figures*. Online available: http://www.mkm.ee/public/estonian_energy_in_figures.pdf [20.11.2010].

German Federal Ministry of Economics and Labor (GFMEL) (2005): *Benchmarking Report on the Electricity and Gas Markets in compliance with the DG TREN requirement of 2 June 2005*. Online available: <http://www.energy->

- regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/NATIONAL_REPORTS/NR_2005/NR/E05-REP-01-03I_NATIONAL%20REPORTS_QU-DE_AX1.DOC [20.11.2010].
- German Federal Competition Authority (GFCA) (2011a): *Sektoruntersuchung Stromerzeugung Stromgrosshandel, Bericht gemäss §32e Abs. 3 GWB*. Online available: www.bundeskartellamt.de/wDeutsch/download/pdf/Stellungnahmen/110113_Zusammenfassung_Abschlussbericht_endg.pdf [10.02.2011].
- German Federal Competition Authority (GFCA) (2011b): *Sektoruntersuchung Stromerzeugung Stromgrosshandel, Bericht gemäss §32e Abs. 3 GWB, Zusammenfassung*. Online available: www.bundeskartellamt.de/wDeutsch/download/pdf/Stellungnahmen/110113_Zusammenfassung_Abschlussbericht_endg.pdf [10.02.2011].
- Lithuanian Ministry of Energy (LME) (2010): *National Energy Strategy – the Road Towards Lithuanian Energy Independence*. Online available: http://www.enmin.lt/en/activity/veiklos_kryptys/strateginis_planavimas_ir_ES/SEP_EN_L.pdf [21.01.2011].
- Lithuanian National Control Commission for Prices and Energy (LNCCPE) (2005): *Annual Report of the Lithuanian Electricity and Natural Gas Market to the European Commission, Vilnius 2005*. Online available: http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/NATIONAL_REPORTS/NR_2005/NR/E05-REP-01-03O_NATIONAL%20REPORTS_QU-LT_ENV-V2.DOC [15.12.2010].
- Lithuanian National Control Commission for Prices and Energy (LNCCPE) (2010): *Annual Report on Electricity and Natural Gas Markets in Lithuania prepared for the European Commission. Report prepared by: National Control Commission for Prices and Energy, Vilnius 2010*. Online available: http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/NATIONAL_REPORTS/National%20Reporting%202010/NR_En/E10_NR_Lithuania-EN_V2.pdf [03.01.2011].
- Latvian Public Utilities Commission (LPUC) (2001): *Annual Report, 2001*. Online Available: http://www.sprk.gov.lv/doc_upl/Annual_Report_2001.pdf [05.02.2011].
- Latvian Public Utilities Commission (LPUC) (2003): *Annual Report, 2003*. Online Available: http://www.sprk.gov.lv/doc_upl/Annual_Report_2003.pdf [05.02.2011].
- Latvian Public Utilities Commission (LPUC) (2004): *Annual Report, 2004*. Online Available: http://www.sprk.gov.lv/doc_upl/Annual_Report_2004.pdf [05.02.2011].
- Latvian Public Utilities Commission (LPUC) (2005): *Annual Report, 2005*. Online Available: http://www.sprk.gov.lv/doc_upl/Annual_Report_2005.pdf [05.02.2011].
- Latvian Public Utilities Commission (LPUC) (2007): *Annual Report, 2007*. Online Available: http://www.sprk.gov.lv/doc_upl/Annual_Report_2007.pdf [05.02.2011].

Latvian Public Utilities Commission (LPUC) (2009): *Annual Report, 2009*. Online Available: http://www.sprk.gov.lv/doc_upl/PUC_Annual_Report_2009.pdf [05.02.2011].

Polish Energy Regulatory Office (PERO) (2009): *Recent developments on the Polish gas market*. Energy Regulatory Office, Communications & education. Online available: <http://www.ure.gov.pl/download.php?s=2&id=34> [06.03.2011].

Swedish Energy Markets Inspectorate (SEMI) (2009): *The Swedish Energy Markets Inspectorate's report in accordance with the EC Directives for the internal markets for electricity and natural gas 2009*. Online available: http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/NATIONAL_REPORTS/National%20Reporting%202010/NR_En/E10_NR_Sweden-EN.pdf [10.03.2011].

Interview ECA (2011): *Interview with Airi Asperk, Chief Specialist in the Energy Department of the Estonian Competition Authority (ECA)*, 19.01.2011 in Tallinn.

Interview EMEAC (2011): *Interview with Einari Kisel Deputy Secretary General of Energy in the Estonian Ministry of Economic Affairs and Communications (EMEAC)*, 26.01.2011 in Tallinn.

Interview LNCCPE (2011): *Interview with Diana Korsakaite, Chairperson of the Lithuanian National Control Commission for Prices and Energy (LNCCPE)*, 8.02.2011 in Vilnius.

Interview LME (2011): *Interview with Zygimantas Vaiciunas, Head Division for Strategic Planning and Coordination of EU Affairs in the Lithuanian Ministry of Energy (LME)*, 8.02.2011 in Vilnius.

Interview LPUC (2011): *Interview with Dace Bite, Head of General Energy Regulation Division in the Latvian Public Utilities Commission (LPUC)*, 10.02.2011 in Riga.

Treaties and Legislation

EU primary and secondary legislation

ECSC: *Treaty establishing the European Coal and Steel Community* (1951)

EAEC: *Treaty establishing the European Atomic Energy Community* (1957)

EEC: *The Treaty establishing the European Economic Community* (1957)

SEA: *Single European Act (SEA)*, OJ L 169 of 29.06.1987.

EC/ECT: *Treaty establishing the European Community (ECT) (consolidate version 1992)*, OJ C 224 of 31.08. 1992.

EU: *Treaty on European Union* (1992), OJ C 191 of 29.07.1992.

Treaty of Lisbon: *Treaty amending the Treaty on European Union (EU) and the Treaty establishing the European Community (EC), signed at Lisbon, 13.12.2007, OJ C 306 of 17.12.2007.*

TFEU: *Treaty on the Functioning of the European Union, OJ C 83 of 30.3.2010.*

EEA: *Agreement on the European Economic Area, OJ L 1, 3.1.1994, 3.*

Directive 90/547/EEC: *Electricity transit directive, OJ L 313, 13.11.1990, p. 30–33.*

Directive 90/37/EEC: *Energy price transparency directive, OJ L 185, 17.7.1990, p. 16–24.*

Directive 91/296/EEC: *Gas transit directive, OJ L 147, 12.6.1991, p. 37–40.*

Directive 96/92/EC: *Internal market in electricity directive, OJ L 27, 30.1.1997, 20–29.*

Directive 98/30/EC: *Internal market in gas directive, OJ L 245, 4.9.1998, 43–43.*

Directive 2003/54/EC: *Internal market in electricity directive, OJ L 176, 15.7.2003, 37–56.*

Directive 2003/55/EC: *Internal market in gas directive, OJ L 176, 15.7.2003, 57–78.*

Regulation 1228/2003/EC: *Regulation for access and management of electricity cross-border exchanges and congestion management, OJ L 176, 15.7.2003, 1–10.*

Regulation 1775/2005/EC: *Regulation for access and management of gas cross-border exchanges and cross-border congestion management, OJ L 289, 3.11.2005, 1–13.*

Decision 2003/796/EC: *Decision establishing ERGEG, OJ L 296, 14.11.2003, 34–35.*

Directive 2009/72/EC: *Internal market in electricity directive, OJ L 211, 14.8.2009, 55–93.*

Directive 2009/73/EC: *Internal market in gas directive, OJ L 211, 14.8.2009, 94–136.*

Regulation 714/2009/EC: *Regulation for access and management of electricity cross-border exchanges and congestion management, OJ L 211, 14.8.2009, 15–35.*

Regulation 715/2003/EC: *Regulation for access and management of gas cross-border exchanges and cross-border congestion management, OJ L 309, 24.11.2009, 87–87.*

Regulation 713/2009/EC: *Regulation establishing ACER, OJ L 211, 14.8.2009, p. 1–14.*

Regulation 139/2004/EC: *Merger control regulation, OJ L 24, 29.1.2004, p. 1–22.*

Other international treaties and legislation

Energy Community: *Treaty establishing Energy Community (TEC)*. Online available: <http://www.energy-community.org/pls/portal/docs/808177.PDF> [10.04.2010].

Energy Charter: *Energy Charter Treaty (ECT)*. Online available: www.encharter.org/fileadmin/user_upload/document/EN.pdf [13.04.2010].

WTO legislation: *General Agreement on Tariffs and Trade 1947 (GATT 1947)*
General Agreement on Tariffs and Trade 1994 (GATT)
General Agreement on Trade in Services (GATS)
 Online available: www.wto.org/english/docs_e/legal_e/legal_e.htm [12.06.2010].

News Articles and Company Press Releases

BBC (2010): *Finland's parliament approves two new nuclear reactors*, published 1 July 2010. Online available: <http://www.bbc.co.uk/news/10474511> [24.03.2011].

E.ON (2008): *E.ON will Erzeugungskapazitäten an Wettbewerber abgeben*, Press Release 17.12.2008. Online available: <http://www.eon.com/de/investors/news-detail-news.jsp?id=8933&year=2008&RenderOutputType=pdf> [04.12.2011].

E.ON (2010): *E.ON-Höchstspannungsnetz geht endgültig an Tennet über*, Press Release 25.02.2010. Online available: <http://www.eon.com/de/media/news-detail.jsp?id=9584&year=2010> [04.12.2011].

FAZ (2008): *Eon will mit Netzverkauf Kartellbusse vermeiden*, article published 29.02.2008. Online available: <http://www.faz.net/artikel/C31151/mehr-wettbewerb-eon-will-mit-netzverkauf-kartellbusse-vermeiden-30010215.html> [05.03.2011].

INTER RAO UES (2010): *Agreement between ENEL and the Russian company INTER RAO UES for cooperation in a number of areas, including the joint development of a nuclear plant at Kaliningrad*, press release published 26.04.2010. Online available: <http://www.interrao.ru/en/news/company/detail.php?ID=389> [13.04.2011]

NZZ (2010): *Versuche zur Flucht aus dem freien Strommarkt, Bedeutende Stromverbraucher wollen zurück zu Monopolpreisen*, Davide Scruzzi, 12.04.2010. Online available: http://www.nzz.ch/nachrichten/politik/schweiz/versuche_zur_flucht_aus_dem_freien_strommarkt_1.5422797.html [12.04.2010].

NZZ (2011): *Etappensieg im Strom-Poker mit der EU*, Stefan Bühler, Gabriela Weiss, 9. 01.2011. Online available:

http://www.nzz.ch/nachrichten/politik/schweiz/etappensieg_im_strom-poker_mit_der_eu_1.9032146.html [14.01.2011].

Tagesanzeiger (2011): *Wie uns die EU unter Strom setzt*, Patrick Feuz, 18. 08 2010. Online available:

http://www.nzz.ch/nachrichten/politik/schweiz/versuche_zur_flucht_aus_dem_freien_strommarkt_1.5422797.html [20.09.2010].

The Baltic Course (2011): *Lithuanian government approves of amendment to Law on Natural Gas*, Petras Vaida. Online available: <http://www.baltic-course.com/eng/energy/?doc=36782> [02.02.2011].

Websites

European Union (EU) Website: www.eu.eu

Energy Community Website: www.energy-community.org

Energy Regulators Regional Association (ERRA) Website: www.erranet.org

International Energy Agency (IEA) Online: www.iea.org

Nordic Council and Nordic Council of Ministers (NORDEN) Website: www.norden.org

Lietuvos Energetikos Institutas (LEI) Website = (2011): www.lei.lt

Latvenergo Website: Latvenergo: www.latvenergo.lv

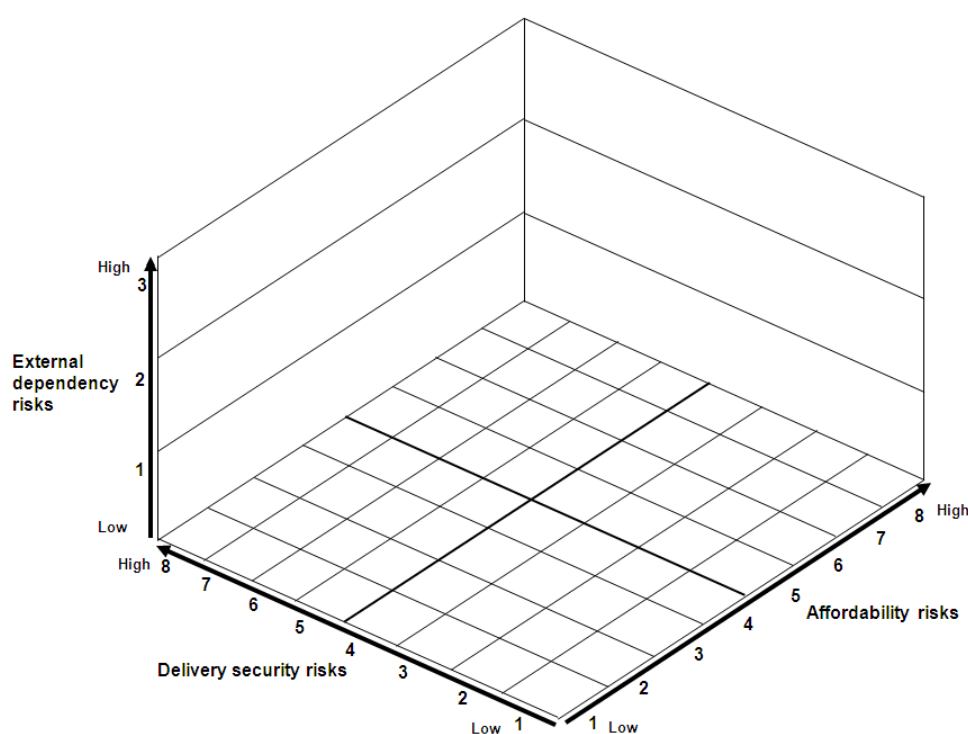
PGNiG Website = Polskie Górnictwo Naftowe i Gazownictwo: www.pgnig.pl

ANNEX

ANNEX I: VISUALIZATION OF POWER SUPPLY SITUATION IN THE CASE STUDIES

The visualization of the power supply situation applied in the case studies (chapter 8) is based on the energy security cube that has been elaborated for this study illustrated below.

Energy Security Cube



The energy security cube is based on the three energy security dimensions discussed in this study (chapter 2.5.1) and helps in that regard to position the different sources of electricity that make up a country's power supply situation. The positioning of the different (main) sources of power is based on the score that each source can be assigned to with regard to each risk dimension as shown below.

Score Table for Positioning the Different Sources of Power in the Energy Security Cube

Source of power:	Delivery security risks	Affordability risks	External dependency risks
Hydro	2	1	1
Nuclear	1	2	2
Biomass	3	3	1
Wind / Solar, Photovoltaic	8	1	1
Electricity imports	5	6	3
Coal / Oil shale	Only domestic: 1 Mix or only import: 4	Only domestic: 5 Mix or only import: 7	Only domestic: 1 Mix or only import: 2
Gas	Only domestic: 1 Mix or only import: 5	7	Liquefied natural gas: 2 Pipeline: 3
Oil	Only domestic: 1 Mix or only import: 7	Only domestic: 6 Mix or only import: 8	Only domestic: 1 Mix or only import: 2

1=lowest risk, 10=highest risk

The scores applied to each source of electricity can be understood as reflecting the relative scope of risk posed by it—with regard to a certain energy security dimension—compared to other sources of electricity. For example, the risk exposure with regard to delivery interruptions is much higher for wind power compared to nuclear, as the probability of outages is higher with the former than the latter. In the case of external dependency risks, piped gas poses a higher risk exposure than oil. In case of oil the world market is large enough to provide for alternative supplies that are relatively quick and easy to source, while in the case of gas, tapping alternative supplies may prove to be a very cumbersome endeavor. This is especially the case if a country relies on only one source of gas. Finally, affordability risks may be lower in case of hydropower compared to electricity imports or in cases where gas and oil are used for electricity generation. In the case of the former, despite costly initial investments for hydropower plants the variable costs (operational costs and fuel prices) are relatively low, while in the case of power facilities burning gas or oil it is the opposite and variable costs (in particular fuel prices) may not only be substantially higher but also subject to considerable volatility. It is important to note that with regard to affordability risks the visualization of a country's power supply situation, as applied in this study, does not take into account emission costs (CO₂) or, in case of nuclear power, insurance costs or costs related to

decommissioning nuclear waste and power plants. Such costs have been omitted for the sake of keeping the visualization approach as simple and transparent as possible. However, this does not mean that such costs can be disregarded. Where necessary, such costs have to be discussed in addition to the visualization of a country's power supply situation. Finally, the scores applied to different sources of electricity are based on the knowledge gathered during this study and, hence, are to some extent subjective. Thus, the positioning of the different sources of power in the energy security cube does not claim universal validity. Nevertheless, the applied approach to visualize a country's power supply situation helps in better capturing the complexity of a country's power supply situation and assessing related developments in the context of energy security. A similar analysis in the form of a discussion would amount not only to a very copious and wordy endeavor but most likely be of no less subjective character.

ANNEX II: DATA USED FOR VISUALIZATION OF POWER SUPPLY SITUATION IN THE CASE STUDIES

The data used for the visualization of power supply situations (see tables below) is based on officially published gross electricity figures. Power losses due to transmission and other reasons as well as consumption by power facilities are not accounted for. Due to rounding errors the figures may differ from their exact mathematical value. Finally, power sources with a contribution of less than 0.1 percent of the overall power supply are omitted. As a consequence, the figures listed in the following tables may not add up to 100 percent. The official IEA-category *renewables and waste* were not included for the visualization of the power supply situation, as they are vaguely defined and do not belong to a country's core supply base. Data sets used for the cases studies differ in the year of reference for two reasons. On the one hand, data sets were specifically chosen providing gross figures, to allow for comparability across countries. On the other hand, the data sets had to be relevant with regard to a country's timing of liberalization. However, given that power supply situations change extremely slowly, the power supply situations of most countries, visualized in this study, are still valid today. Except for Finland and the Baltics and the increase in wind power in Germany, the core electricity supply situation in most countries did not significantly change over the last 20 years, despite liberalization.

Table 1: Power Supply Situation in Germany 1998

	Output share in %	Output share in TWh	Circle radius r in cm*
Coal	54.2	299.4	9.8
Oil	1.2	6.6	1.5
Gas	9.8	54.1	4.2
Renewables and waste	1.6	8.8	1.7
Nuclear	29.3	161.8	7.2
Hydro	3.1	17.1	2.3
Solar/Wind/Other	0.8	4.4	1.2
Total	-	552.4	-

	In Moet	In TWh	Circle radius r in cm*
Electricity imports**	3.3	38.4	3.5
Electricity exports**	3.4	39.5	-
Power consumption	-	466.4	-

*Formula employed to calculate the circle radius $r = \sqrt{\frac{\text{Output share in TWh}}{\pi}}$ which in terms of centimeters is used to visualize the data in the form of circles in Microsoft Office PowerPoint.

**TWh calculated using IEA online energy unit converter (1 Moet \approx 11.6 TWh).

Sources: IEA (1998: 95, 2001: 215–217).

Table 2: Power Supply Situation in Sweden 1996

	Output share in %	Output share in TWh	Circle radius r in cm*
Coal	3.0	4.2	1.2
Oil	5.1	7.2	1.5
Gas	0.4	0.5	0.4
Renewables and waste	1.6	2.2	0.8
Nuclear	52.8	74.2	4.9
Hydro	36.8	51.7	4.1
Solar/Wind/Other	0.1	0.1	-
Total	-	140.3	-

	In Moet	In TWh	Circle radius r in cm*
Electricity imports**	1.4	16.3	2.3
Electricity exports**	0.8	9.3	-
Power consumption***	-	144.0	-

*Formula employed to calculate the circle radius $r = \sqrt{\frac{\text{Output share in TWh}}{\pi}}$, which in terms of centimeters is used

to visualize the data in the form of circles in Microsoft Office PowerPoint.

**TWh calculated using an IEA online energy unit converter (1 Moet \approx 11.6 TWh).

***Power consumption based on 1998 data as no reliable data available for 1996.

Sources: IEA (1996: 215, 1999: 231).

Table 3: Power Supply Situation in Finland 1990

	Output shares in %	Output share in TWh	Circle radius r in cm*
Coal	33.0	17.9	2.4
Oil	3.1	1.7	0.7
Gas	8.6	4.7	1.2
Renewables and waste	-	-	-
Nuclear	35.3	19.2	2.5
Hydro	20.0	10.9	1.9
Solar/Wind/Other	-	-	-
Total	-	54.4	-

	In Moet	In TWh	Circle radius r in cm*
Electricity imports**	0.9	10.5	1.8
Electricity exports**	0.0	0.0	-
Power consumption	-	64.9	-

*Formula employed to calculate the circle radius $r = \sqrt{\frac{\text{Output share in TWh}}{\pi}}$, which in terms of centimeters is used

to visualize the data in the form of circles in Microsoft Office PowerPoint.

**TWh calculated using an IEA online energy unit converter (1 Moet \approx 11.6 TWh).

Sources: IEA (1996: 150)

Table 4: Power Supply Situation in Poland 1989

	Output shares in %	Output share in TWh	Circle radius r in cm*
Coal	95.7	139.2	6.7
Oil	1.1	1.6	0.7
Gas	0.6	0.9	0.5
Renewables and waste	-	-	-
Nuclear	-	-	-
Hydro	2.6	3.8	1.1
Solar/Wind/Other	-	-	-
Total	-	145.5	-

	In Moet	In TWh	Circle radius r in cm*
Electricity imports**	1	11.6	1.9
Electricity exports**	0.9	10.5	-
Power consumption	-	147.0	-

*Formula employed to calculate the circle radius $r = \sqrt{\frac{\text{Output share in TWh}}{\pi}}$, which in terms of centimeters is used

to visualize the data in the form of circles in Microsoft Office PowerPoint.

**TWh calculated using an IEA online energy unit converter (1 Moet \approx 11.6 TWh).

Sources: IEA (1990: 32, 103).

Table 5a: Power Supply Situation in Lithuania 2004

	Output shares in %	Output share in TWh	Circle radius r in cm*
Oil	2.1	0.4	0.3
Gas	13.9	2.7	0.9
Nuclear	78.2	15.1	2.2
Hydro	2.0	0.4	0.3
Other**	3.6	0.7	-
Total	-	19.3	-

	In Moet	In TWh	Circle radius r in cm*
Electricity imports**	-	0.1	0.2
Electricity exports**	-	7.3	-
Power consumption	-	12.1	-

*Formula employed to calculate the circle radius $r = \sqrt{\frac{\text{Output share in TWh}}{\pi}}$, which in terms of centimeters is used to visualize the data in the form of circles in Microsoft Office PowerPoint.

**Includes hydro-pumped storage (0.5 TWh).

Sources: LEI Website (2011).

Table 5b: Power Supply Situation in Lithuania 2010

	Output shares in %	Output share in TWh	Circle radius r in cm*
Oil	-	-	-
Gas	25.4	3.9	1.1
Nuclear	-	-	-
Hydro	3.5	0.5	0.4
Wind	1.4	0.2	0.2
Other**	1.6	1.0	-
Total	-	5.7	-

	In Moet	In TWh	Circle radius r in cm*
Electricity imports	-	7.0	1.5
Electricity exports	-	1.0	-
Power consumption	-	11.7	-

*Formula employed to calculate the circle radius $r = \sqrt{\frac{\text{Output share in TWh}}{\pi}}$, which in terms of centimeters is used to visualize the data in the form of circles in Microsoft Office PowerPoint.

**Includes hydro-pumped storage (0.7 TWh).

Sources: LEI Website (2011).

Table 6: Power Supply Situation in Latvia 2009

	Output shares in %	Output share in TWh	Circle radius r in cm*
Oil	-	-	-
Gas	25.4	1.3	0.6
Nuclear	-	-	-
Hydro	63.3	3.4	1.4
Other**	11.3	0.6	1.9
Total Generation	-	5.3	-

	In Moet	In TWh	Circle radius r in cm*
Electricity imports	-	4.3	1.2
Electricity exports	-	2.6	-
Power consumption	-	7.2	-

*Formula employed to calculate the circle radius $r = \sqrt{\frac{\text{Output share in TWh}}{\pi}}$, which in terms of centimeters is used to visualize the data in the form of circles in Microsoft Office PowerPoint.

** Including other fossil fuel CHP plants 9.7%, wind power stations 0.9%, biomass 0.7%.

Sources: LPUC (2010: 21).

Table 7: Power Supply Situation in Estonia 2004

	Output shares in %	Output share in TWh	Circle radius r in cm*
Oil	-	-	-
Gas	4.7	0.4	0.4
Oil shale	92.6	9.1	1.7
Hydro**	0.19	0.02	0.1
Wind	0.01	0.007	-
Other	2.4	0.2	-
Total Generation	-	9.7	-

	In Moet	In TWh	Circle radius r in cm*
Electricity imports	-	0.3	0.3
Electricity exports	-	2.1	0.8
Power consumption	-	6.9	-

*Formula employed to calculate the circle radius $r = \sqrt{\frac{\text{Output share in TWh}}{\pi}}$, which in terms of centimeters is used to visualize the data in the form of circles in Microsoft Office PowerPoint.

**Includes hydro-pumped storage (0.7 TWh).

***Data based on 2006 figures.

Sources: EMEAC (2006: 11, 53; 2007: 17–19).

CURRICULUM VITAE

Idir Laurent Khiar was born on 22 January 1980 in Bern, Switzerland. He went to elementary and secondary school in Jona in the Canton of St. Gallen, and graduated from High School (Wirtschaftsgymnasium) in Wattwil in 2000.

In 2001, Idir Laurent Khiar enrolled at the Faculty of Arts of the University of Zurich, where he studied Political Science, International Law and Economic and Social History. After a study visit in Estonia and a longer language stay in Russia in 2005, he received a Master of Arts (Lizentiat) in summer 2007.

In parallel to his studies, Idir Laurent Khiar worked in the financial industry in different capacities, and held an external advisory role in a task force for the regulation of the business of private military companies at the Faculty of Law of the University of Zurich. Between 2007 and 2009, he worked as a government and regulatory affairs manager for Zurich Financial Services (ZFS), an international insurance company.

From fall 2009 on, Idir Laurent Khiar dedicated his entire time to his doctoral studies. Based in the Faculty of Economics of the University of Tartu in Estonia, he conducted research on energy liberalization in the Baltic Sea Region from October 2009 to June 2011. That was made possible by a research grant provided by the European Union in cooperation with the University of Tartu (DoRa ESF Program) and a fellowship from the Swiss National Science Foundation (SNF). Idir Laurent Khiar submitted his doctoral thesis in political science in the fall of 2011.

